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SWAZILAND

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ANNUAL MEDICAL & SANITARY REPORT

FOR THE YEAR 1958

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INTRODUCTION

Swaziland has an area of 6,704 square miles and is bordered on the north, west and south by the Transvaal, and on the east by Portuguese East Africa and Natal. The territory is geographically divided into 3 longitudinal regions, namely the mountainous highveld with an altitude of 5,000 to 3,000 feet on the west, the middleveld with an average altitude of 2,000 feet and the lowveld or bushveld, on the east, with an altitude of 500 to 1,500 feet.

The highveld has a temperate climate and frosts occur during the winter. The climate of the middleveld is sub-tropical and that of the bushveld almost tropical.

Rainfall, which occurs chiefly in the summer, varies between approximately 60" a year in the highveld to approximately 30" a year in the lowveld. The country is well watered by numerous perennial streams and rivers.

The Swazi are predominantly peasant farmers and livestock owners, and live in "Native Areas", 35 in number, which are scattered throughout the Territory and intersected by European-owned land.

Their dwellings for the most part consist of wattle-and-daub structures, or bee-hive huts, and small family collections of these huts are widely dispersed. Other than in the neighbourhood of the European towns, there are no villages.

A census held in 1956 gave the total population of Swaziland as 237,041 of which 5,919 were Europeans and 1,378 Eurafricans.

The medical needs of the Territory are met by

(a) The Swaziland Government Medical Service, which is responsible for the Public Health Laboratory at Bremersdorp, hospitals at Mbabane, Hlatikulu, Pigg's Peak and Mankaiana, and 10 clinics in outlying areas of the Mbabane, Pigg's Peak, Manzini and Hlatikulu districts;

(b) Medical Missions, viz. the Nazarene Mission at Bremersdorp, with its Raleigh Fitkin Memorial Hospital and 10 clinics in the Manzini, Stegi and Pigg's Peak districts; the Roam Catholic Mission at Stegi, with its Good Shepherd Hospital; and the Methodist Mission with its Mahamba Hospital at Mahamba; and

(c) Private practitioners at Mbabane, Bremersdorp, Malkerns, Stegi, Pigg's Peak and at Mliba in the Manzini District, and Sicunusa in the Mankaiana district. The Swaziland Irrigation Scheme at Mananga employs a full time medical officer, and the Havelock Asbestos Mine has a well-equipped hospital and two full-time Medical Officers, for employees and their families.

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CHAPTER 1

MEDICAL DEPARTMENT STAFFING (AS AT 31/12/58)

(a) SENIOR SERVICE.

	Name	Station
Director of Medical Services	Dr. B.D. Whitworth	Mbabane
1 Medical Officer of Health	Dr. R. D. Gauldie	Bremersdorp
8 Medical Officers	Dr. O. Arnheim	Hlatikulu
	Dr.L.E.D.F.Joubert	Mbabane
	Dr. A. P. Zwane	Mbabane
	Dr. J.F. Alexander	Mbabane
	Dr. H.A. Jones	Hlatikulu
	Dr. H. Seidel	Hlatikulu
	Dr. F. Friedman	Pigg's Peak
	1 Post Vacant.	
2 Pharmacist/Storekeepers	Miss M. Smith	Mbabane
	Mr. J.L.van der Vyver	Hlatikulu
2 Matrons	Miss E.M. Bailey	Mbabane
	Miss J. Wilson	Hlatikulu
14 Nursing Sisters	Miss J.M.van der Meulen	Mbabane
	Miss D. E. Burns	Hlatikulu
	Miss A. McKillop	Hlatikulu
	Miss A. Martin	Hluti
	Miss M.A. von Wissell	Goedgegun
	Mrs. H. Perkins	Mankaiana
	Miss E. Dunning	Mbabane
	Miss D. Chapman	Mbabane
	Miss J. Hansmeyer	Mbabane
	Mrs. P.T. Mdiniso	Mbabane
	Mrs. A. Mabuza	Mbabane.
	3 Posts Vacant	
1 Radiographer	Miss R.J. O'Shea	Mbabane
1 Laboratory Assistant	Miss A.V.M. Thompson	Bremersdorp
2 Health Inspectors	Mr. G.J. van Eeden	Bremersdorp
	Mr. D. M. Eckard	Mbabane
1 Accountant	Mr. J. H. Thomas	Mbabane
1 Lady Clerk	Mrs. D.M.C. Lane	Mbabane
1 Housekeeper (Mbabane Hospital)	Mrs. M. McCall	Mbabane

(b) JUNIOR SERVICE.

2 Senior Hospital Assistants
1 Hospital Assistant
2 Dispensers
2 Pupil Dispensers (1 post vacant)
3 Laboratory Assistants
4 Clerks
70 Nurses (7 posts vacant)
3 Out-patient Attendants (1 post vacant)
4 Ambulance Drivers
1 Senior Malaria Assistant
10 Malaria Assistants
10 Ward Attendants
3 Dispensary Orderlies
14 Orderlies
3 Nurse Aides
15 Laundresses
2 Seamstresses
2 Office Messengers

/cont.

Junior Service (contd)

1 Night Watchman
4 Hospital Groundsmen
5 Cooks
4 Assistant Cooks (2 Posts vacant)
5 Housemaids

APPOINTMENTS, PROMOTIONS, RESIGNATIONS AND RETIREMENTS IN SENIOR SERVICE DURING 1958

APPOINTMENTS

Dr. F. Friedman,	Medical Officer	24.4.58
Miss M.J. Crawford-McKenzie	Nursing Sister	1.5.58
Dr. H. M. Carson	Medical Officer	28.5.58
Dr. H. A. Jones	Medical Officer	1.6.58
Miss E. Dunning	Nursing Sister	5.8.58
Miss D. Chapman	Nursing Sister	1.9.58
Miss J. Hansmeyer	Nursing Sister	3.9.58

PROMOTIONS

Miss J. Wilson	Nursing Sister to Matron	1.4.58
Mrs. P.T. Mdiniso	Nurse to Nursing Sister	1.4.58
Mrs. A.C.T. Mabuza	Nurse to Nursing Sister	1.4.58
Mr. J. H. Thomas	Clerk to Accountant	1.4.58

RETIREMENT

Dr. O. Mastbaum, O.B.E.	4.12.58

RESIGNATIONS

Miss S. S. Robberts	Nursing Sister	31.1.58
Mrs. H. Swart	Laboratory Technician	29.7.58
Mrs. J. Spencer	Nursing Sister	9.9.58
Miss M.J. Crawford-McKenzie	Nursing Sister	30.9.58
Dr. H. M. Carson	Medical Officer	30.11.58
Mrs. S. du Pisani	Nursing Sister	16.12.58

The Malaria Medical Officer, Dr. O. Mastbaum, O.B.E., left Swaziland in August, on leave pending retirement, having seen the malaria control measures carried out by his unit since 1950 bring about the almost complete eradication of malaria from Swaziland. At the request of the World Health Organisation, Dr. Mastbaum had in April and May carried out a survey of the malaria position in Southern Rhodesia, and with the Medical Officer of Health, he represented Swaziland at the World Health Organisation Malaria Eradication Meeting in Lourenco Marques in August.

Immediately after this meeting, Dr. Mastbaum proceeded to Lisbon to attend the South International Congress of Tropical Medicine and Malaria, as a representative of the World Health Organisation, by whom he had been appointed to the World Expert Panel of Malariologists; and he now holds a World Health Organisation Malaria Consultant position in Southern Rhodesia.

/In April ....

In April, the first appointments of Africans as Nursing Sisters were made, with the promotion of Staff Nurse P. T. Mdiniso and Staff Nurse A.C.T. Mabuza, who hold the double South African Nursing Council qualifications, and who have rendered outstanding service at Mbabane Hospital.

VISITORS.

The World Health Organisation's A. gambiae Advisory Team arrived in the Territory on the 12th February. The leader, Dr. Holstein, stayed for 10 days, while the other two entomologists, Mr. Ramsdale and Mr. Rivola remained until 29th April.

Dr. Kenneth Martin, World Health Organisation, Nairobi, visited Swaziland in April, to discuss future W.H.O projects.

Dr. A. Geser, World Health Organisation Tuberculosis Consultant, visited Swaziland, from 29th May to 2nd June, 1958.

Dr. A. Silva Santos, World Health Organisation Fellow in Malaria Control, visited the Malaria Control Unit at the end of July.

/Chapter 3 ...

CHAPTER 2.

PUBLIC HEALTH.

On the retirement of the Malaria Medical Officer, the Medical Officer of Health assumed over-all control of the anti-malarial measures, in addition to the bilharzial investigational work and general public health duties. A Health Inspector, previously on part-time anti-malarial duties, was detailed to full-time malaria control work, while a Health Inspector previously engaged in general public health duties, was detailed to full time bilharzia investigation. A third Health Inspector is to be engaged for general public health duties.

(i) Communicable Diseases.

(a) MALARIA.

Potentially the most significant occurrence in the field of malaria during 1958, was the World Health Organisation Meeting on Malaria Eradication in South Eastern Africa, held at Lourenco Marques, on 25th-27th August, at which the Union of South Africa, Southern Rhodesia, Mozambique, Bechuanaland Protectorate, Swaziland and Madagascar were represented, and at which the following recommendations were made

(i) that the meeting accepts that eradication of malaria is feasible in the conditions prevailing in South-Eastern Africa and recommends as a pilot eradication scheme, an area consisting of roughly the southern third of Mozambique, the southern third of Southern Rhodesia, the eastern third of Bechuanaland Protectorate, the northern portion of the Transvaal and Cape Province, Swaziland and the northern portion of Zululand;

(ii) that as experience elsewhere has shown that a thorough assessment of all aspects of theproblem is an essential preliminary to a successful eradication programme, the meeting recommends that pre-eradication survey teams should be available to the territories concerned;

(iii) that, in order to ensure adequate co-ordination of the surveys and later of the eradication phase of this international project, it is recommended that a standing Co-ordinating Committee consisting of two members of each participating government and of representatives of the World Health Organisation's Regional Office should be formed;

(iv) and that liaison between the Co-ordinating Committee and Governments should be carried out by the World Health Organisation as represented by the Regional Office in Africa.

(The official report of the Meeting on Malaria Eradication in South Eastern African is given in World Health Organisation document AFRO/Mal/3 of 3rd October 1958).

With the present satisfactory condition of near-eradication of malaria in Swaziland, concern over the disease is focussed outside Swaziland's borders rather than within, and signs of future adequate control measures by our neighbours in Mozambique and Zululand are heartily welcomed.

/Action ....

Action on the recommendations of the meeting is awaited,

The World Health Organisation A. gambiae Advisory Team worked in the Territory from 12th February to 29th April, and the visit was greatly appreciated. A preliminary report of their findings has been received, but the final report, including the results of precipitin tests on mosquito meals is not yet to hand. The Team aimed at obtaining information on the present habits of A. gambiae and A. funestus, and their findings may be summarised as

(i) low mosquito densities found,
(ii) only an occasional vector mosquito found in African huts in areas where control measures had been discontinued,
(iii) A. gambia and A. funestus in Swaziland show a considerable deviation to cattle, only a small proportion biting man, their habits thus making them very poor vectors.

The Team also worked for a short time in Mozambique, with a surprising finding of survivors among A.funestus exposed to 4% D.D.T in an area where no control measures had been carried out in the past.

During the summer months at the beginning of the year under review, control measures (hut spraying) in Swaziland were continued in a "cordon-sanitaire" along Swaziland's eastern border. However, when anti-malarial measures were restarted in September after the winter break, it was decided that in view of the very low parasite rate (0.2% of all children examined during the previous transmission season) and in view of the findings of the W.H.O. A. gambiae Advisory Team, control measures by spraying would, in future, be carried out only at the Irrigation Schemes in the eastern lowveld areas and on certain European-owned farming estates, where there is a considerable "turn-over" of labour, much of it from neighbouring "uncontrolled" territories.

At the two large Irrigation Schemes, chemoprophylaxis by means of the issue of pyrimethamine to all Africans on the estates once a fortnight, was also carried out. All the other previously malarious areas of Swaziland were covered by surveillance teams, whose duties were to send in regular blood slides, to check all cases of febrile illness, treat all "positive-slide" cases found, to dose all immigrants, with a curative dose of chloroquine + pyremethamine and to report on mosquito breeding. The number of the surveillance staff has been increased, and in the present transmission season, it is expected that the number of slides examined will increase markedly. During 1958, a total of 7,188 slides were received at the Public Health Laboratory from surveillance teams and 50 from hospitals, health centres and private practitioners. Of these 7,238 slides, 50 were positive, and of these "positives", all but 13 were of extra-territorial origin.

There was again considerable breeding by A. gambiae. And A. funestus, which had apparently disappeared for some years after spraying, has re-appeared and is breeding

/fairly .....

fairly extensively again. In addition to larvae catches, regular test spraying of African huts as well as night catches were also carried out. The results of the test-spraying were that the number of A. gambiae did not exceed 1 in 2926 huts and the number of A. funestus did not exceed 1 in 292 huts.

The full reports of the work of the Malaria Control Unit by the Medical Officer of Health and Health Inspector on Malaria Control duties will be found in Appendices I and II , pages 23 and 27.

(b) BILHARZIA.

While it is estimated that approximately 30% of the African population of Swaziland (i.e. 69,000 persons) are infested with urinary bilharzia, only 0.8% of those infested (viz. 539 patients) sought treatment at Government and Mission Hospitals during 1958. The great majority of cases seeking treatment were boys suffering from haematuria, and the late and serious effects of bilharzia were seldom encountered clinically. While it is not possible to be dogmatic on the subject, it does appear that at present the ill-effects of bilharzial infection on the African ppopulation of Swaziland are minimal. Whether this is due to a racial resistance to the disease or to a low load of infection, it is not at present possibly to say.

In view of the above and on account of the comparative ineffectiveness of present methods of bilharzia control no major control measures are at present visualised, but every effort is being made to obtain a complete picture of the bilharzia position throughout the territory, special attention being paid to the Irrigation Schemes.

With this object in view, numerous surveys and investigations have been carried out during the year, the details of which will be found in "The Report on Bilharzia Investigations, 1958" in Appendix III, at page 34.

A brief summary of the present bilharzia position in the Territory is that the vector snail of urinary bilharzia (B. Physopsis) has not yet been found in the highveld, but is present in most of the rivers, streams and dams of the middleveld and lowveld, where the incidence of urinary bilharzia infection is found to vary between 20% and 40%. The vector snail of intestinal bilharzia (Biomphalaria) is abundant in the north-eastern portion of Swaziland, where as many as 40% of the Africans living on an Irrigation Scheme in this area are affected with this form of the disease.

The number of cases of bilharzia dealt with at Government and Mission Hospitals over the past 10 years is as follows:-

1949	424
1950	642
1951	604
1952	650
1953	606
1954	719
1955	414
1956	298
1957	372
1958	543

/(These ...

(These figures should be read in conjunction with a steady rise in the total number of cases dealt with).

Regular spraying with copper sulphate every 6 to 8 weeks, of all the watercourses of the Bilharzia Pilot Control Scheme in the Mzimnene catchment area round Bremersdorp, have been carried out over the past six years, and this has resulted in a considerable reduction, but not the complete disappearance, of vector snails in this area.

In April children who had grown up in the area (viz. those of 10 years old and under) were examined and 23.8% of the 316 children examined were found to be infested with urinary bilharzia. In assessing this very disappointing result, allowance must be made for the possibility of the children having become infested elsewhere than in the controlled area. It was felt, however, that continuation of the control scheme was not justified and it was abandoned in June. A close watch will be kept on the snail population and the area will probably in future be used as a testing ground for molluscicides.

During surveys on the incidence of intestinal bilharzia, when stool specimens were examined by the M.I.F. Concentration Test, a record was kept of other ova discovered, with the following results:-

Number of specimens examined 567.

Ova of	Ascaris lumbricoides ("Round Worm")	present	in	13.1%
" "	Taenia saginata ("Beef Tape Worm")	"	"	9.4%
" "	Trichuris trichiura ("Whip Worm")	"	"	8.6%
" "	Strongyloides spp.	"	"	2.4%
" "	Entrobius Vermicularis ("Thread Worm")	"	"	1.6%
" "	Ancylostoma Duodenale ("Hookworm")	"	"	0.5%
" "	Fasciola Hepatica	"	"	0.4%
" "	Hymenolepis Nana ("Dwarf Tape Worm")	"	"	0.2%

(c) TUBERCULOSIS.

The report of the World Health Organisation Tuberculosis Assessment Team, which worked in the Territory from October 1956 to February 1957, was received in April 1958. The report was based on six randomly selected samples of the population, each sample consisting of 600 persons living side by side within a community, the totalled samples representing 1.6% of the African population of Swaziland. Each person was tuberculin-tested and sputum specimens were obtained from each person over 13 years of age. The percentage of persons who had the tuberculin test carried out and read was 93.3% and the percentage who attended the bacteriological examination was 98.0%. In children of up to 14 years of age, it was found that the tuberculin reaction fell clearly into two distinct groups, one of large reactions of 18 - 20 mm and one of small reactions of less than 10mm, the test thus effectively separating this group of the population into those presumably infected at some time with tubercle bacilli and those not infected. After 14 years, the separation into two groups became less clear - but the frequency of large reactions increased with age up to 30 - 40 years, when the large majority of the people apparently have "had contact" with the tubercle bacilli. From the results of the sputum examination, it was concluded that the actual prevalence

/of persons ....

of persons in Swaziland excreting acid-fast bacilli lay between 0.6% and 1.6%.

The full report can be seen in "Tuberculosis Survey of Basutoland, Bechuanaland and Swaziland", published by the World Health Organisation, Tuberculosis Research Office, Copenhagen.

Receipt of this report was followed by a visit from Dr. A. Geser, World Health Organisation Tuberculosis Consultant, who was in Swaziland from 28th May to 2nd June. Dr. Geser, after studying the problem on the spot and taking into account the impossibility, for financial reasons, of dealing with the tuberculosis problem by means of hospital beds, or even by more cheaply established settlements, put forward a scheme of domiciliary treatment. The scheme envisaged a territory-wide case-finding programme, carried out by a team equipped with a mobile x-ray unit and a mobile laboratory, all persons being tuberculin tested, the positive reactors being x-rayed and the negative reactors being given B.C.G. vaccine; all those with radiological signs suspicious of tuberculosis to be treated in their homes, on I.N.A.H. only, at the dosage of 8 mg per kg., for one year, under the supervision of Swazi health visitors, who would be equipped with bicycles. It was suggested that the cost of such a scheme should be shared by World Health Organisation and the Swaziland Government.

Opposition to this scheme has been expressed by the Medical Adviser to the Colonial Office, on account of the danger resulting from the development of strains of tubercle bacilli resistant to I.N.A.H., and the question of amending the scheme in some way is at present under consideration.

During 1958 in Swaziland, there was a further rise in the number of cases of tuberculosis reported, there being 983 cases of all types, of which 573 were treated as in-patients and 410 as out-patients. The number of cases of pulmonary tuberculosis was 688, as against 544 in 1957, which was then the highest number of cases ever recorded. Of these 688 cases, 418 were treated as in-patients, constituting 2.8% of all in-patients dealt with, and 270 were given out-patient treatment.

A 24 bedded tuberculosis ward at Mbabane Hospital was opened in October 1958, and is constantly full of advanced, sputum-positive tuberculotics. Two Government and two Mission Hospitals now have separate accommodation for tuberculotics, totalling 76 beds in all, a completely inadequate number to deal with the problem on a hospitalisation basis. Recourse is made to out-patient treatment, which is usually successful only when the patient lives very near the source of treatment. There is one known exception to this generalisation, namely an enthusiatic nurse in charge of an isolated clinic in the bushveld, who is obtaining very good results with PAS and INAH, or Streptomycin and INAH, the secret of his success being that out-patient defaulters are immediately visited and stimulated to continue treatment.

The Mbabane Division of the British Red Cross are now visiting the patients in the tuberculosis ward at Mbabane Hospital regularly, for the supervision of knitting and other

/forms ......

forms of "occupational therapy". These visits are greatly appreciated, and have had a beneficial effect on the patients' morale.

(d) INFLUENZA.

Although no epidemic of influenza occurred in 1958, in contrast to the "explosive" epidemic of Asian Influenza that swept through Swaziland in August 1957, the number of cases of influenza recorded was nevertheless higher than in 1957, viz. 3807 with two deaths, as against 3390 cases in 1957. While it is probable that during the 1957 epidemic, the majority of cases were not recorded, the 1958 figure is considerably higher than usual. The cases occurred throughout the year, with the usual rise in incidence over July, August and September, and the great majority of cases were mild.

(e) LEPROSY.

The position remains satisfactory, and the number of patients in the Mbuluzi Leper Colony was the same at the end of 1958 as at the end of 1957, viz. 40. During the year there were 14 admissions and 4 re-admissions and 15 discharges, 2 deaths and 1 desertion. The full report on the Colony by the Medical Superintendent, Raleigh Fitkin Memorial Hospital, will be found at Appendix IV (page 44).

(f) SMALLPOX.

There were again no cases of smallpox, and the vaccination campaign was temporarily suspended. During the past 6 years, 177,264 vaccinations have been carried out, which indicates that approximately 77% of the African population have been vaccinated.

(g) ACUTE POLIOMYELITIS.

Two cases only of Poliomyelitis, both in Africans, were reported during the year. A total of 370 injections of anti-poliomyelitis vaccine were administered.

(h) ENTERIC FEVER.

No epidemic of enteric fever occurred, and 63 sporadic cases, with 3 deaths, were dealt with. The figures were much the same as in previous years.

(i) DIPHTHERIA.

A small epidemic broke out at Motshane near Mbabane in November, there being 7 cases and 2 deaths. Subsequently 644 persons from surrounding areas received prophylactic inoculations. In addition 14 sporadic cases of diphtheria with 3 deaths occurred in other areas.

(j) MENINGOCOCCAL MENINGITIS.

Ten sporadic cases of meningococcal meningitis, with two deaths were treated, the majority of the cases being from Southern Swaziland.

/(k).....

(k) OTHER INFECTIOUS DISEASES.

An outbreak of Measles occurred in the last quarter of the year, in which European children were particularly badly affected. In all 871 cases were recorded, of which 227 were Europeans. In the previous two years, the number of cases of measles reported was 179 and 302. The measles epidemic was followed by an outbreak of Mumps, which was remarkable for the number of adults affected, some of whom became seriously ill. The number of cases of Chicken-pox reported was 220, as against 114 and 140 in the previous two years, while Whooping Cough was present throughout the year, 653 cases being recorded as against 776 and 252 cases in 1957 and 1956 respectively.

(l) DYSENTERY AND GASTRO-ENTERITIS.

There was little change in the number of cases of bacillary and amoebic dysentery reported (416 and 143 respectively), whilst the number of cases of gastro-enteritis in children aged 4 weeks to 2 years rose to 2895 from 2211, and the number of deaths rose to 42 from 21. A further 24 deaths occurred in an additional 2086 cases of gastro-enteritis in children over 2 years in age and this condition, together with malnutrition, accounts for a considerable proportion of the child deaths in the territory, and the outlook is gloomy, as advice on general hygiene and infant feeding given in hospitals, out-patient departments and clinics appears to have little effect, and a real improvement in the condition will probably take place only when the general educational standard of the population can be raised.

(m) VENEREAL DISEASES.

There was a slight rise in the number of cases of venereal diseases reported in 1958, the cases constituting 5.38% of all cases dealt with, as against 5.1% in 1957.

For the period 1948-1954, the number of cases of syphilis reported annually was between 4,000 and 4,500 whilst the number of cases of gonorrhoea reported was between 1,000 and 1,500. During the period 1955-1957, the position changed considerably, the number of cases of syphilis falling and the number of cases of gonorrhoea rising, until in 1957 the number of cases of syphilis was 2,151, as against 2,592 cases of gonorrhoea.

In 1958 the numbers were

Syphilis	2,379
Gonorrhoea	2,719

The figures given for venereal diseases include figures from the clinics, and consequently the figure quoted is considerably higher than that given in "The Return of In-Patients and Out-Patients from Government and Mission Hospitals" in Appendix V , which does not include clinic figures.

(n) TAPE WORM INFESTATION.

The campaign against tapeworm infestation in the Swazi, begun in August 1957, was continued. The African Malaria Assistants treated all cases found during tours of their districts in the course of their anti-malaria duties, and special efforts were made at hospital out-patient departments and clinics to treat all those infested. The

/"single-"....

"single-dose" treatment, with dichlorophen was continued, and no serious ill-effects were encountered. The treatment appeared to be effective, and is popular with the Swazi.

The number of cases treated during 1958 were as follows:-

By Malaria Assistants & Health Office staff	4,864
At Government clinics	864,
At Government hospitals	1,223
	6,951

The figures of the numbers of cases treated in 1957, as given in the "Annual Medical and Sanitary Report - 1957" were incomplete and should read 9,434 and not 6,629.

It is of interest to note that in the examination of 567 stool specimens, during the course of bilharzial investigations, 9.4% were found to contain ova of Taenia saginata.

It is considered too early to expect a decrease in the number of slaughter cattle affected with "measles" and figures from Mbabane and Bremersdorp abattoirs, in fact, show little change from 1957 in the number of "measly" carcases (7.2% as against 7.5% in 1957).

(ii) NUTRITIONAL AND DEFICIENCY DISEASES.

There has been a further marked increase in the number of cases of "nutritional diseases" reported and these conditions and enteritis were a leading cause of death in hospitals.

The position is very disturbing and will probably only improve when the majority of the population have some knowledge of food values and attempts at propagating this knowledge have up to the present been an unrewarding task. It is felt that the greatest stumbling block to a better nutritional state is ignorance of human food requirements rather than shortage of food, and certainly after a tour of the Swazi Farmers' Association pavilion at the annual Swaziland Show at Bremersdorp, with its outstanding exhibits of first-class produce of all kinds, it is difficult to believe that malnutrition is one of the Territory's greatest medical problems.

The Red Cross Society has recently established four infant welfare clinics, and it is hoped to establish a further two such clinics, and propaganda which emanates from such centres as these and which is backed-up by practical results, will probably be more effective than pamphlets, posters, etc.

The number of cases of "nutritional disease" reported in 1958 was 1,459, which is 1.7% of all cases dealt with, and which was made up as follows:-

Malnutrition (unqualified)	768	cases	with 22	deaths,
Kwashiorkor	512	"	" 26	"
Pellagra	131	"	" 5	"
Scurvy	48	"		

/The .....

The increase in the number of cases of "nutritional disease" since 1952 is as follows:-

1952	147	cases
1953	286	"
1954	388	"
1955	330	"
1956	454	"
1957	1010	"
1958	1459	"

While part of the increase is due

(i) to a larger total number of cases being dealt with, and

(ii) to an increased awaredness of the condition among medical personnel,

it is felt that the actual increase has been significant and is serious.

(iii) SANITATION.

Sanitary conditions remain unchanged, being, on the whole, satisfactory in the townships, and anything but satisfactory in the uncontrolled "squatters townships" that are springing up around the larger centres.

It has not been possible as yet to make a start with the Mbabane sewerage disposal system, and the position at Mbabane Hospital, where the french drains repeatedly overflow, is anything but satisfactory, and the central portion of Mbabane can hardly expand and develop further in the absence of an adequate sewerage system.

An effort is being made to eliminate gradually the remaining pail closets from the towns, and all new buildings are being provided with water borne sewerage and septic tanks.

(iv) WATER SUPPLIES.

The water supplies at Mbabane, Bremersdorp and Stegi, which are chlorinated, have remained at a satisfactory state of purity throughout the year.

In Goedgegun, Pigg's Peak, Hlatikulu and Mankaiana, where untreated water is used, the position is not satisfactory and the water is not considered fit for human consumption unless boiled.

A more adequate water supply for Bremersdorp has been approved and a new water supply at Goedgegun is under construction.

(v) FOOD SUPPLIES.

Meat inspections were carried out at Mbabane and Bremersdorp abattoirs by Health Inspectors, as reguarly as other important duties permitted.

At other centres, meat inspections were carried out by Stock Inspectors, when available. In an attempt to improve the position, all abattoir attendants were given a

/course.....

course of instruction in Meat Inspection at the Bremersdorp abattoir, consisting of lectures and practical demonstrations and are now considered capable of recognising abnormal conditions in meat, which it is their duty to report to the local District Commissioner, who will then arrange for the meat to be inspected by a Medical Officer, Veterinary Officer, Health Inspector or Stock Inspector.

The following table shows the number of carcases examined at various centres during the year, with the number of carcases "detained" and "destroyed".

CARCASES EXAMINED DURING 1958

ABATTOIR	BOVINES	SWINE	SHEEP	CALVES	DETAINED		DESTROYED	
					Bov.	Swine	Bov.	Swine
Mbabane	882	354	681	41	66	7	4	13
Bremersdorp *	1795	590	849	-	107	-	12	18
Hlatikulu *	177	41	-	-	-	-	8	-
Goedgegun *	202	66	10	-	-	-	-	2
Stegi *	232	3	-	-	-	-	7	-
TOTAL	3288	1054	1540	41	173	7	31	33

* Records not complete.

All bovines and swine detained were infested with "measles"
All swine destroyed were infested with "measles"
All bovines destroyed were infested with "measles" except for three carcases from the Mbabane abattoir, two of which were condemned for Tuberculosis and one for Septicaemia, and four carcases from the Bremersdorp Abattoir, two of which were condemned for Sarcocysts and two that arrived at the abattoir dead.

Other conditions discovered in meat inspections carried out at Mbabane and Bremersdorp by Health Inspectors were:-

	Bovines	Pigs	Sheep
Fasciola hepatica	163	-	136
Stilesia hepatica	-	-	210
Echinococcus	5	-	24
Tuberculosis	1	3	-
Actinomycosis	1	-	-
Other conditions (bruising, abcesses etc)	27	2	5

Throughout the Territory inspections of food-handling businesses were carried out as regularly as possible, and the following articles were seized and condemned as unfit for human consumption:-

353 tins of tinned food of various types ,
20 lbs. Cheese
110 lbs. Sugar
53 packets Dates
21 Soles
7 Rock Lobster Tails.

/Chapter....

CHAPTER 3

HOSPITALS AND CLINICS.

GOVERNMENT HOSPITALS AND CLINICS.

The 16-bedded Hospital at Pigg's Peak was opened in July and by the end of the year was showing signs of overcorwding.

The tuberculosis ward at Mbabane Hospital, which was designed for 12 beds was opened in October. By being less generous with bed-space and by using the verandah, 24 beds have been installed in these wards and have been constantly full.

The new wards, out-patient department and dispensary at Hlatikulu Hospital were completed, except for electrical installation, by the end of the year. Fairly extensive repairs and renovations are now required in the old wards to bring them up to standard.

Slow progress was made with improvements and renovations being carried out at Mankaiana Hospital, but it is hoped that operations there will be completed by August 1959.

It is hoped to obtain funds shortly to enlarge Mbabane Hospital, which facilities are now grossly inadequate.

There was a further marked rise in the amount of work carried out at Government Hospitals, with only a very small increase in staff, and the staff is now at full stretch at all hospitals, and often grossly overworked at some. Under present conditions it is unavoidable that out-patients are sometimes dealt with more rapidly than is desirable or kept waiting for longer periods than may appear necessary to them.

There were at Government Hospitals 206 beds at the beginning of the year, and this was increased by 16 in July and by a further 24 in October, to bring the territorial total to 246. Yet the daily average number of in-patients in Government Hospitals over the year was 342, as against 286 in 1957; while the number of in-patients dealt with rose from 7,711 in 1957 to 9,025 in 1958.

There was also a marked rise in the number of out-patients dealt with at hospitals and clinics, the figures rising from 101,393 in 1957 to 116,525 in 1958.

Details of the number of cases dealt with at the various Government Hospitals and clinics will be found in Appendix VI, page 53.

MISSION HOSPITALS AND CLINICS.

The subsidies payable to Medical Missions were increased during 1958, with retrospective effect to 1st April 1957, and the subsidies now payable are as follows:-

Nazarene Mission (Raleigh Fitkin Memorial Hospital)	£8990	as against	£6410	previously
Roman Catholic Mission (Good Shepherd Hospital)	£2461	" "	£1180	"
Mahamba Methodist Hospital	£2611	" "	£1340	"

At the Raleigh Fitkin Memorial Hospital, Bremersdorp, a new theatre-x-ray block was opened in September and building is proceeding on two new ward blocks. The Mission is being assisted by Government in this respect by means of a building grant.

At the Good Shepherd Hospital, Stegi, building has started on a new block consisting of theatre and wards for European patients.

The number of in-patients dealt with at the mission hospitals rose in 1958 to 5,886 from 4,557 in 1957, the daily average number of patients in mission hospitals being 192, while the number of out-patients seen at mission hospitals and clinics showed a slight fall, from 59,970 patients in 1957 to 57,710 patients in 1958.

Details of the number of patients seen at the various mission hospitals and clinics are given in Appendix VII page 55.

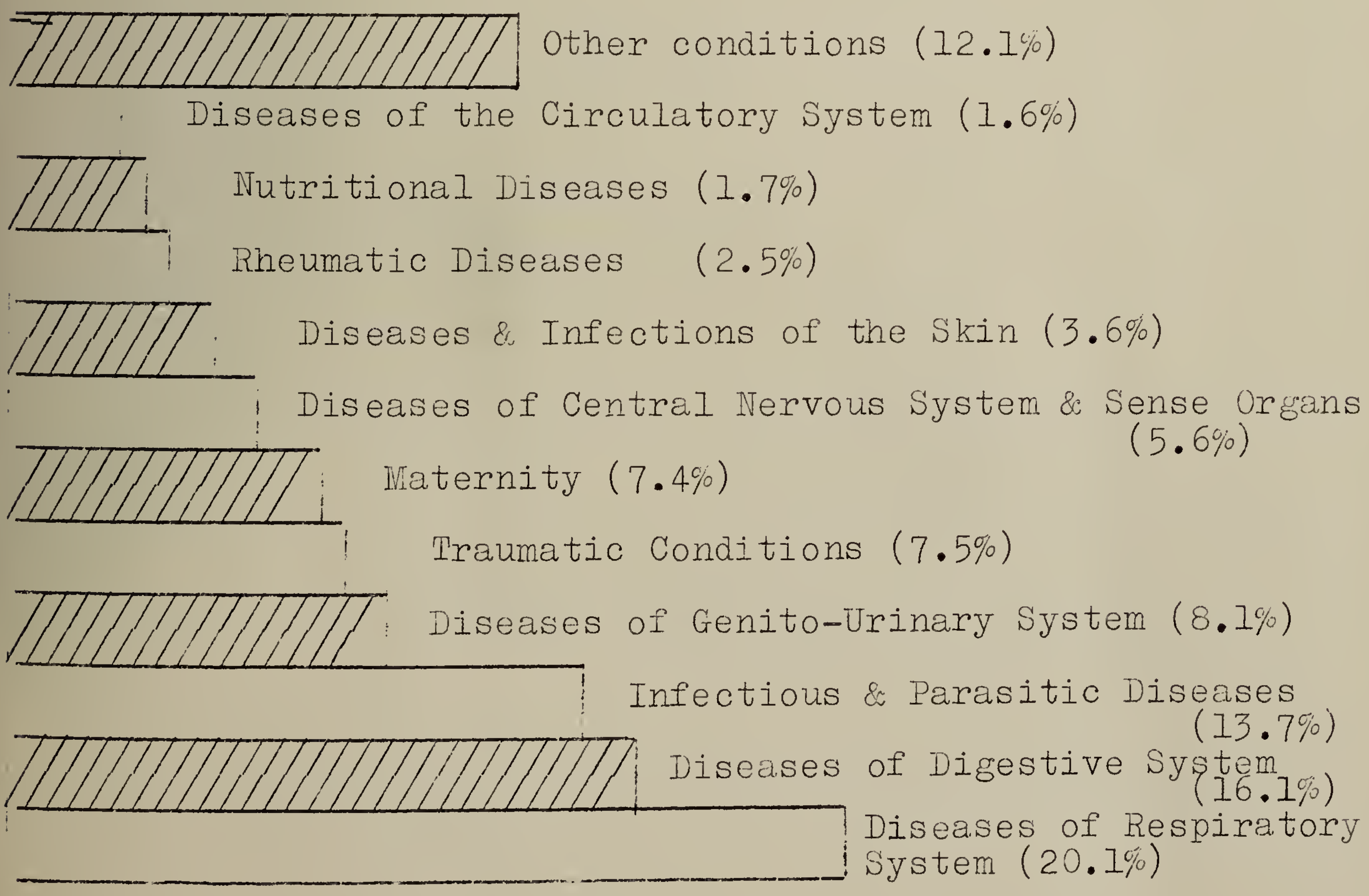
HAVELOCK MINE HOSPITAL

The number of Africans, who were not mine employees or their dependants, who were treated at Havelock Mine Hospital was as follows:-

Number of Admissions	196
Daily Average Number of In-patients	4.9
Number of Out-patients	
New cases	133
Re-attendances	38.

THE PATTERN OF DISEASE

The comparative frequency of the various "disease-groups" which accounted for the attendances at Government and Mission Hospitals in 1958 is shown in the following diagram -

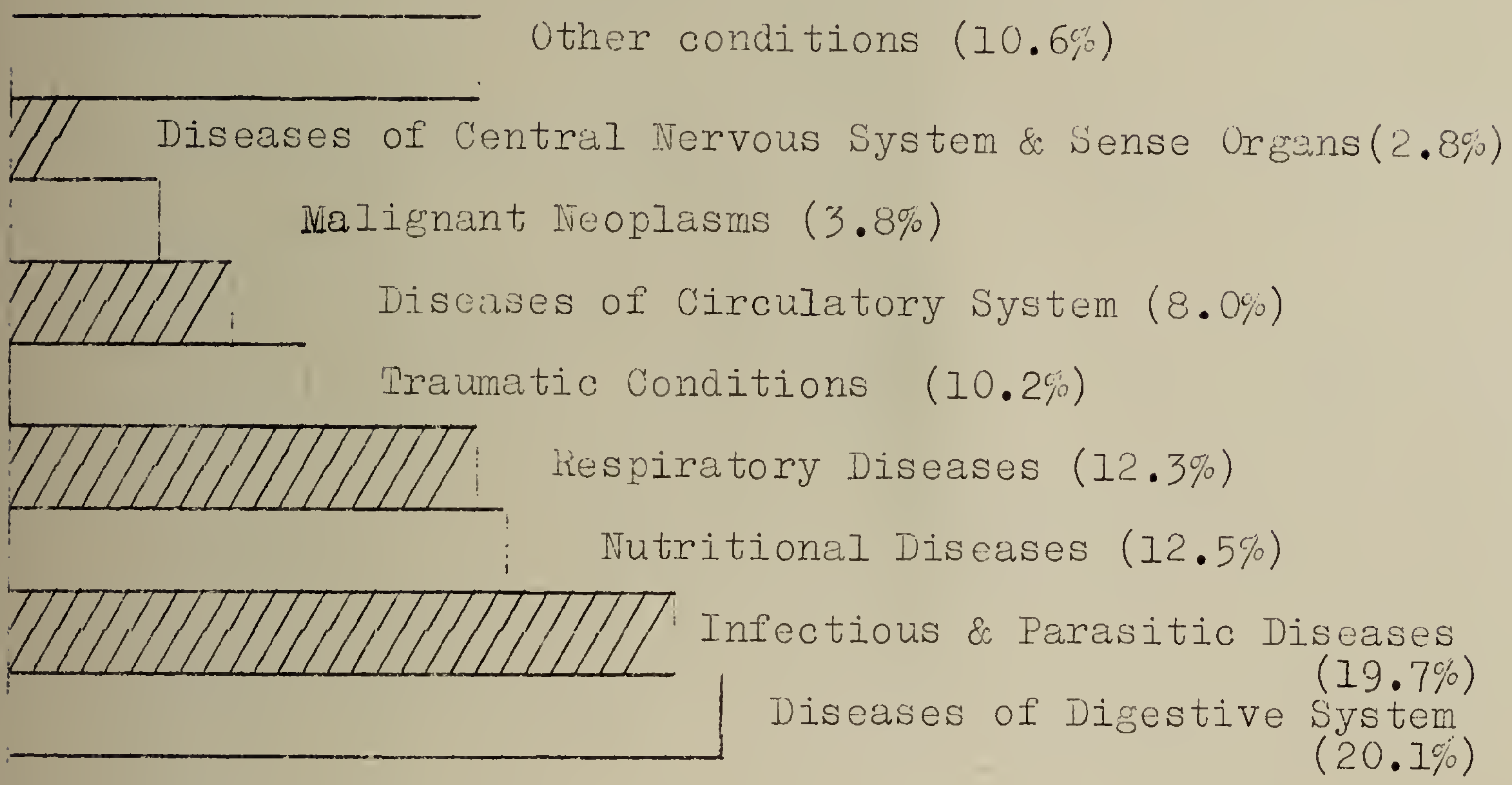


/The "other" ....

The "other conditions" include the following -

Malignant Neoplasms	0.12%
Benign Neoplasms	0.36%
Goitre, Diabetes, etc.	0.31%
Anaemias	0.38%
Allergic Disorders	0.77%
Diseases of Infancy, P.U.O., Senility, Ill-defined causes of Morbidity,	3.2%
Medical Examinations	5.1%
Prophylactic Injections	1.9%

The distribution of the hospital deaths amongst the various "disease groups" was as follows:-



The "other conditions" include the following:-

Senility, P.U.O & other ill-defined causes of morbidity	4.0%
Diseases of the Newborn	1.9%
Maternity	1.9%
Diseases of the Genito-urinary system	1.8%
Diseases & Infections of the Skin	0.5%
Anaemias	0.5%

The above diagrams (and especially the "causes of deaths" diagram) bring out the striking difference in the disease pattern of Swaziland as against more advanced countries, when such conditions as Diseases of the Circulatory System and Malignant Neoplasms assume considerably greater importance than such conditions as Infectious Diseases. That "Diseases of the Digestive System" lead as a cause of deaths is due to the large number of enteritis deaths.

The nosological return of in-patients and out-patients treated at Government and Mission Hospitals during the year will be found in Appendix V, page 47.

/Chapter 4 ...

CHAPTER 4.

MATERNITY SERVICES.

Antenatal clinics are held at Government and Mission Hospitals and at most of the outlying clinics. Maternity wards in the hospitals are now very popular and are often overcrowded. In view of the overcrowding, it may in future be necessary to limit admission to primiparious women and to others in which difficulties are foreseen.

The number of antenatal examinations and confinements carried out during 1958 was as follows, with the 1957 figures for comparison:-

	ANTE NATAL EXAMINATIONS.		CONFINEMENTS	
	1957	1958	1957	1958
Mbabane Hospitals & Clinics	1998	2212	512	586
Hlatikulu Hospitals & Clinics	3456	3183	189	186
Mankaiana Hospital	422	486	136	147
Pigg's Peak Hospital (July-December)	-	99	-	27
Raleigh Fitkin Memorial Hospital & Clinics	4557	4888	794	853
Good Shepherd Hospital	+	467	+	137
Mahamba Methodist Hospital	+	712	+	71

+ Not available.

CHAPTER 5

TRAINING OF AFRICAN NURSES.

Nurses are trained at the Ainsworth Dickson Nursing College, attached to the Raleigh Fitkin Memorial Hospital at Bremersdorp, for both the High Commission Territories Nursing Council Certificates and the Swaziland Executive Nursing Committee Certificates. The minimum educational standard for the latter is only Standard 6, and it is hoped that as more candidates with Junior Certificate come forward, this "lower standard" qualification will fall away.

The results of examinations held during the year were as follows:-

HIGH COMMISSION TERRITORIES NURSING COUNCIL

Medical and Surgical Nursing.		Passed	Failed
Preliminary Examination		3 (1 with honours)	-
Final Examination		1	1
Midwifery	Part I	1	1
	Part II	2	2

SWAZILAND EXECUTIVE NURSING COMMITTEE

	Passed	Failed
Preliminary Examination	15	3
Final Examination	7	2

The number of nurses in training at 31st December 1958, was as follows:-

1st Year	41
2nd Year	10
3rd Year	10
4th Year	7.

CHAPTER 6

LABORATORY SERVICES.

The laboratory at the Health Office, Bremersdorp, was open for most of the year and the following examinations were carried out -

	No. examined	No. positive
V.D.R.L.	7035	1620
Widal	165	63
Blood Culture (Typhoid)	78	7
Sputum (Tuberculosis)	22	6
Throat Swabs (Diphtheria)	41	9
Stools (Culture)	5	-
" (Bilharzia)	13	-
" (Parasitology)	20	-
Urine (Microscopic)	5	-
" (Culture)	1	-
" (Bilharzia)	71	16
Blood Counts	37	
Other Seriological Examinations	7	
Total	7500	
Malaria Films from hospitals, clinics and general practitioners	50	5

The routine examination of stools and urine specimens taken during Bilharzia Surveys are not included in these figures, nor are the blood slides submitted routinely by the Malaria Assistants.

Histological examinations and other more complicated procedures were carried out at the South African Institute for Medical Research, Johannesburg, as previously.

The small laboratories at Mbabane and Hlatikulu Hospitals, where the simpler examinations are carried out, fulfil a most useful purpose and were fully occupied during the year, the number of specimens examined being as follows:-

/Nature ....

Nature of Specimens.	Mbabane Hospital.	Hlatikulu Hospital.
Urines	4625	1912
Smears for bacteriology	3916	506
Sputum	1385	932
Stools	615	695
Bloods	555	412
Blood for Sedimentation Rate		543
	11096	5000

CHAPTER 7.

VITAL STATISTICS.

The registration of births and deaths is complusory only in the case of the European inhabitants of Swaziland, and the available statistics are consequently of limited value, and are as follows:-

Total European Population (1956 Census)	5932
European Births	112
European Deaths	28
Deaths under 1 year of infants born in 1958	1

The causes of the European deaths were as follows:-

Diseases of the heart and circulatory system	13
Cerebral Haemorrhage and Thrombosis	6
Accidental	3
Malignant Neoplasms	2
Pneumonia	2
Pulmonary Embulism	1
Nephritis	1

It is of interest to compare this list with the diagram on page 17 .

CHAPTER 8

PRISONS

Medical inspections of the prisons at Mbabane, Hlatikulu Bremersdorp and Stegi are carried out at regular intervals, and sanitary conditions remain satisfactory. The health of the prisoners during the year has been good.

/Chapter 9 ...

CHAPTER 9

FINANCE

The financial statement of the Department for the period 1st April 1957-31st March 1958 is as follows:-

		£	
Revenue			
Hospital, Health Centre and other fees		3,888	
Expenditure			
Personal Emoluments		50,880	
Travelling Expenses		2,056	
Allowances and Fees		2,429	
Maintenance of Patients		21,713	
Laboratory Services		1,115	
Maintenance of Lunatics		3,214	
Hospital Equipment		3,011	
Uniforms - Africans		934	
Vaccinations		95	
Subsidies for Medical Services; Church of Nazarene Mission of South Africa £10397; Roman Catholic Mission £100; Catholic Mission, Stegi £1180; Mahamba Mission £1058; Our Lady of Sorrows Clinic £200; Red Cross £75.		13,010	
Anti-Malaria Measures		405	
High Commission Territories Nursing Council		135	
Upkeep of Grounds		143	
Upkeep of X-ray Plants		514	
Transport of Stores		3,349	
Transport of Silicous Patients		1	
Bilharzia Control		1,032	
Upkeep of Vehicles, etc.		1,326	
W.H.O., T.B. Team expenses		11	
Contribution C.D.W. Schemes			
D. 2713 Anti-Malaria Campaign		4,319	
D.2715 Leper Settlement		784	
Purchase of Landrover (railage)		24	
Total Territorial Expenditure			110,500
C.D.W. Schemes expenditure			
D. 1085 Extensions Mbabane & Hlatikulu Hospital		108	
D. 2711 Construction T.B. Wards, Mbabane		4,520	
D. 2712 Quarters & Equipment, Pigg's Peak Hospital		2,017	
D.2713 Anti-malaria & Public Health		9,524	
D. 2715 Leper Settlement		1,592	
D. 2782 Hlatikulu Hospital Extensions		20,567	
		38,330	
LESS Territorial Contribution			
D.2713 Anti-malaria & Public Health	4319		
D.2715 Leper Settlement	784	5,103	33,227
Total expenditure on Medical & Sanitary Services			143,727
Total Revenue of Territory			1,260,033
The relationship of Medical expenditure (excluding C.D.W. Fund expenditure) to total revenue of Territory			8.8%

/In...

In conclusion, I wish to express my sincere appreciation of the loyal and efficient manner in which members of the Department carried out their duties during the year.

B. D. WHITWORTH

DIRECTOR OF MEDICAL SERVICES.

APPENDIX I

MALARIA CONTROL UNIT OF THE PUBLIC HEALTH LABORATORY, BREMERSDORP. - ANNUAL REPORT FOR 1958.

1. GENERAL.

METEOROLOGY: The annual rainfall as recorded by the Meteorological Station, Bremersdorp, is shown in Table 1.

MONTHLY RAINFALL AT BREMERSDORP.

	1958.	Average over last 7 years.
January	12.12	4.84
February	3.50	5.76
March	1.58	3.95
April	3.25	2.49
May	0.17	1.32
June	1.00	0.64
July	0.14	0.92
August	0.0	1.14
September	2.35	1.87
October	2.18	3.86
November	4.94	5.00
December	3.67	4.79
	34.90	36.58

2. MALARIA TRANSMISSION.

From previous reports it will be noted how transmission of malaria has been interrupted in the various areas under control and now as a result of a further interruption in malaria transmission with a parasite rate of only 0.2% in all the children examined during the transmission season, January to May 1958, it was decided to discontinue all mosquito control measures in future, except for the three Irrigation Schemes and a few European farms in the eastern lowveld. This decision was based mainly on the low parasite rate, and on certain entomological data obtained by a constant study of the habits of the vector mosquitos by the field staff and the findings of a World Health Organisation Entomological Team that visited the Territory early in 1958. The old system of active control has now given place to active surveillance, which commenced in September.

3. MALARIA INCIDENCE.

The routine examination of blood slides has continued throughout the year. A total of 7188 slides from infants, children and also adults have been examined. Of these, 45 specimens were found to be positive for malaria parasites. An analysis of the positive cases revealed that only 12 were indigenous cases, all the rest were from persons who had visited neighbouring uncontrolled areas or were arrivals from these areas.

The following table shows the incidence of the disease during the transmission season January-May 1958 -

/Total....

TOTAL NUMBER EXAMINED 3258

Sprayed Areas along Eastern, Northern & Southern Borders.

	No. examined.	No. Positive	% Positive
Infants 0-12 months	310	1	0.33
Children 1-14 years	1709	1	0.06
Adults	99	nil	0.0
TOTAL	2118	2	0.09

Areas where control measures have ceased.

	No. examined.	No. positive.	% positive
Infants 0-12 months	88	nil	0.0
Children 1-14 years	614	nil	0.0
Adults	20	1	5.0
TOTAL	722	1	0.13

Irrigation Schemes along Eastern Border.

	No. examined.	No. positive	% Positive.
Infants 0-12 months	61	nil	0.0
Children 1-14 years	313	3	0.95
Adults	44	1	2.3
TOTAL	418	4	0.9

(Extra territorial "positives" excluded.)

There was some doubt about where the infant, found positive in the sprayed area, had acquired the infection and though it is listed as an indigenous case the possibility exists that the infection may have occurred outside the territory.

The adult found positive in the area where control measures have ceased acquired her infection by sleeping outside her hut.

On the irrigation schemes the position is much as it has always been - being so close to the borders of uncontrolled neighbouring territories, the possibility exists that individuals may become infected by visiting these areas or the border areas without this information becoming available to the staff. However, the position is very satisfactory showing a considerable improvement on the previous year's figures.

The following tables show the incidence of the disease during the non-transmission season June-December 1958.

TOTAL NUMBER EXAMINED 3930

Sprayed areas along Northern, Eastern & Southern Borders.

	No. examined.	No. positive.	% positive.
Infants 0-12 months	202	nil	0.0
Children 1-14 years	1569	2	0.12
Adults	75	nil	0.0
TOTAL	1846	2	0.1

/Areas .....

Areas where control measures have ceased.

	No. examined.	No. positive	% positive
Infants 0-12 months	152	Nil	0.0
Children 1-14 years	1171	3	0.25
Adults	55	Nil	0.0
TOTAL	1378	3	0.2

Irrigation Schemes along Eastern border.

	No. examined	No. positive	% positive
Infants 0-12 months	56	Nil	0.0
Children 1-14 years	618	Nil	0.0
Adults	32	Nil	0.0
TOTAL	706	Nil	0.0

(Extra territorial "positives" excluded)

The three cases found positive in areas where spraying has ceased, live in the Maphungwane area which borders on Portuguese East Africa. No vector mosquitos have been found in this area which is situated high up on the Ubombo Mountains, so there is a strong possibility that they may have acquired their infection by visits to the neighbouring territory.

Apart from the routine blood slides examined, Hospitals, Health Centres and General Practitioners have submitted slides for examination. A total of 50 specimens were examined and 5 were found to be positive for malaria parasites. Of the 5 positive specimens, four were found to be extra-territorial infections. The one indigenous case was a European child from the Big Bend area, living with his parents on the banks of the Nyetane river. An intensive blood survey in the area after discovering this single fresh infection was negative. A. funestus mosquitos were found in the area at the time, but subsequent investigations have revealed that they are now not found in huts. No further cases occurred in this area.

SURVEILLANCE:

It is most important, now that mosquito control measures have been discontinued, to keep a very close watch on the behaviour of the disease and on the behaviour of the vector mosquitos. For this purpose the field staff has had to be increased. The duties of the surveillance staff are as follows:-

(1) Regular taking of blood smears for examination at the laboratory,
(2) Tracing and treating all immigrants from neighbouring uncontrolled areas;
(3) Treating all cases reported "positive" by the laboratory,
(4) Regular check spraying of huts for entomological information,
(5) Regular submission of larvae found in their areas for entomological identification at the laboratory.

In addition to these duties three members of the staff

/are ....

are responsible for the fortnightly issuing of prophylactic drugs on the irrigation schemes.

ENTOMOLOGICAL DATA.

A, Gambia: As in previous years, the finding of wide spread breeding of A. gambia throughout the bushveld areas is common but the adults are very seldom encountered in huts. This observation was confirmed by the World Health Organisation Entomological Team during a survey in the territory early in the year.

Even in areas where the application of residual insecticide had been discontinued three years previously the finding of house frequenting A. gambia is a rarity.

A. funestus. Larvae of this mosquito have been found in the Hereford, Ngomane, Nyatane, Sipofaneni and Mhlatusane areas, but the finding of house frequenting adults has been rare.

A careful watch was kept on the behaviour of both types of vector mosquitos throughout the year and as yet no reversion to an endophillic existence has been observed.

CONCLUSION:

In spite of the fact that the malaria position is entirely satisfactory at present, both from the parasitological and entomological view points, it will not be possible to eradicate the disease fully until out neighbours undertake a full control scheme for eradication as we have done.

At the recent Malaria Conference held in Lourenco Marques, the hope was expressed that such schemes would start in 1960. Depending on the success of these schemes a time will come when Swaziland will be able to reduce expenditure and staff, but just when such a position will be reached is difficult to foresee, and until such a position is reached, we will have to continue the active surveillance programme started this year.

R. D. GAULDIE

MEDICAL OFFICER OF HEALTH.

APPENDIX II

MALARIA ERADICATION SCHEME : SWAZILAND.

REPORT ON MALARIA SURVEILLANCE AND CONTROL MEASURES CARRIED OUT IN THE TERRITORY DURING SEPTEMBER-DECEMBER 1958.

1. DISCONTINUATION OF MALARIA CONTROL:

Since the inception of Malaria Control, initially started on a small scale over an area of approximately 300 square miles in 1949, control measures have been expanded in systematic stages year by year and ultimately covered the entire malarious areas, in the Middleveld and Lowveld, approximately 3500 square miles in extent, in 1954/55. (Details of work and progress was published by Dr. O. Mastbaum, Malaria Medical Officer in 1955 and 1956).

The incidence of clinical malaria and also the parasite rate in the indigenous population had been reduced considerably, and as a result of the complete interruption of transmission in a certain Middleveld area (portion of Area 10;140 sq. miles/population 8,000, see map), control measures were discontinued in this section in 1954/55. (Transmission nil during past three years.

After the 1955/56 season, control was further curtailed and residual spraying was discontinued in the following areas:- (Transmission nil for past two years)

Maphungwane	-	Portion of Area No. 5
Sipofaneni-Sinceni	-	Area No. 7
Hlambeni-Gundwini and the Middleveld Area	-	Area No. 11

Total area ± 1100 square miles; total population affecte 31,300.

Further interruption in transmission has been observed, in the Horo area (portion of Area No. 1 - 100 sq. miles/ population 3957) and the Stegi-top area (portion of Area No. 5 - 25 sq. miles/population 2,200).

These areas received their last spray in 1956/57 season, and as reault of entomological observations, the Gollel area received only a single spray as compared with a double spray in the previous years.

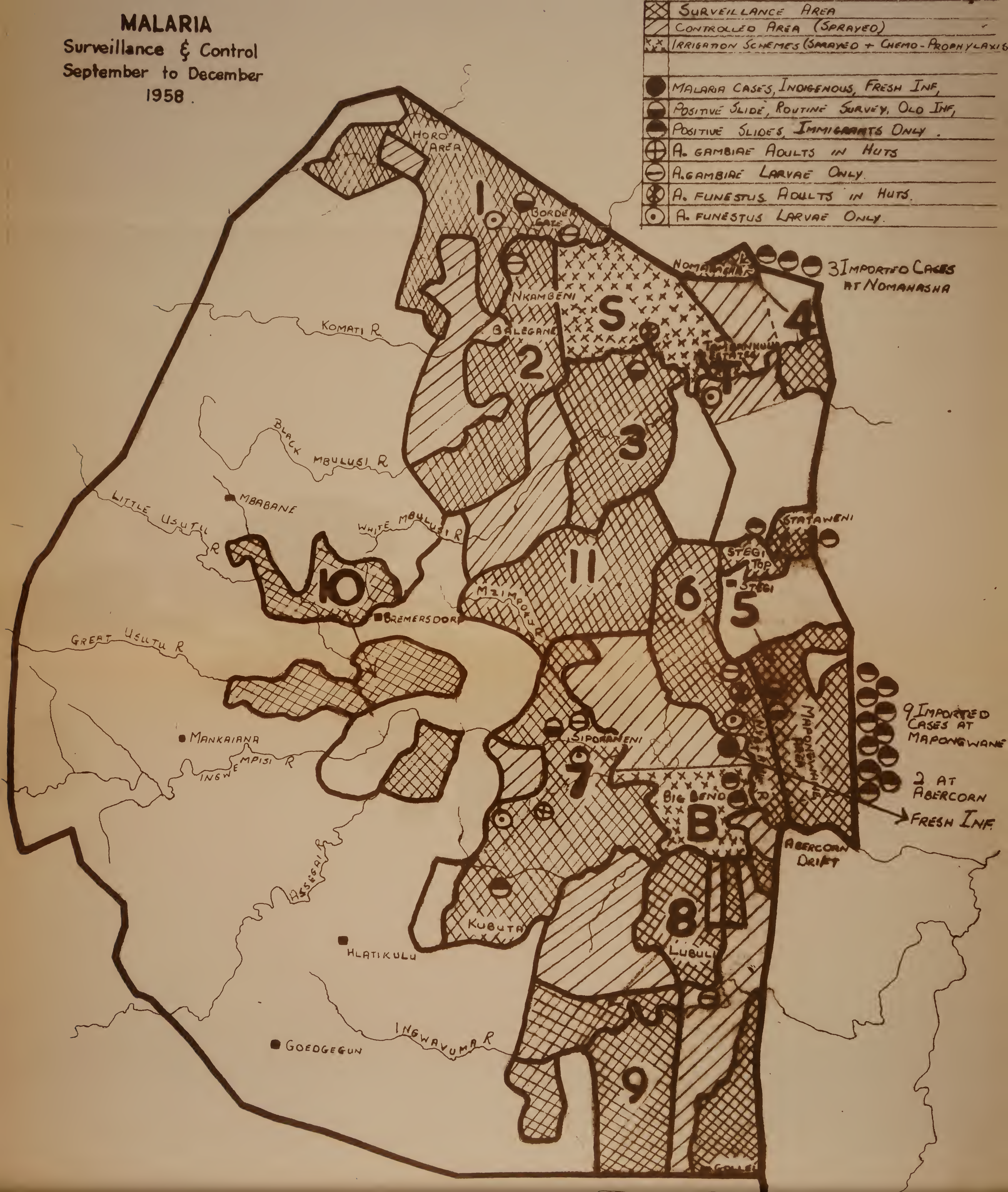
All the areas described above were subject to intensive surveys, entomological and clinical, by means of group blood-surveys during the transmission seasons.

2. SURVEILLANCE AND ERADICATION.

Based on this experience and also on the findings of tw entomolgists from the World Health Organisation, who surveyed the territory early in 1958, it was decided to embar on an eradication scheme. Routine control measues, (viz. insecticidal spraying), have thus been discontinued in the major portion of the malarious areas (including all the areas marked from 1 to 11 on the attached map) and the spraying of residual insecticide is now confined only to certain Europea farms and three major irrigation schemes in the territory.

The position is being watched very closely and should signs of a "break-through" occur emergency measures may have

MALARIA
Surveillance & Control
September to December
1958.



to be instituted.

Active surveillance in all the unsprayed areas commenced in September 1958.

The number of field assistants has been increased and they were trained in

(a) taking of blood films
(b) administering of drugs to all immigrants from Portuguese East Africa and North Zululand,
(c) Collecting of entomological specimens, larvae and adult mosquitoes.

The unchecked movement of African labour forces from Portuguese East Africa, where no control has ever yet been done, and the Northern parts of Natal, where transmission has not yet been interrupted, is undoubtedly a serious weakness in our eradication campaign. For this reason the efforts of the field staff in locating such immigrants and treating them with schizontal and Gametocidal drugs has been intensified and the chemo-prophylaxis at the three irrigation schemes has been meticulously enforced.

The field staff operates as two units viz -

(a) Surveillance
(b) Control

The surveillance staff responsible for all the routine work throughout all the native areas consists of the following.-

1. Lorry Driver
1 Senior Malaria Assistant
10 Trained Malaria Assistants
7 Field Assistants - Native areas,
3 " " " Drug prophylaxis etc. at Irrigation Schemes.

Control staff (spray unit); responsible for all residual spraying on farms and irrigation schemes. Also to assist with entomological surveys, night-catches etc:-

1 Driver, trained in Malaria control.
6 Casual Labourers.

The entomological identification and field supervision is done by a Health Inspector and the scheme is directed by the Medical Officer of Health.

3. AREA.

The areas covered by the surveillance team has been divided into 11 sections which have, for reference to this report, been numbered from 1 to 11 on the attached map of the territory. The areas covered by control measures (residual spraying) are indicated //// on the map.

Surveillance area approximately 2,000 sq. miles
Controlled areas " " 1,300 " "

4. POPULATION AND HUT COUNT.

The first step in our surveillance was to have a fairly accurate count of the population and their living quarters.

This was done by the field staff during the months of August and September. Apart from its statistical value the

count also gave Malaria Assistants an opportunity to acquaint themselves with their respective areas and also to establish personal contact, with the people of very village. New villages and also strangers from bordering territories could thus be detected more readily. During surveillance a field assistant must cover his entire area at least once every fortnight.

The following table indicates the results of the hut an population count:-

	Kraals	Huts	Adutls.	Children 1-12 yrs.	Babies 1-12 mth.	Total Population.
Area No. 1	1869	10,358	6687	5356	1146	13,189
" " 2	1155	6,803	3123	4418	497	8,038
" " 3	455	1,545	1072	1468	222	2,762
" " 4	556	2,229	1071	1661	274	3,636
" " 5	1351	5,968	3800	3641	683	8,124
" " 6	1104	4,698	2913	4085	752	7,750
" " 7	1192	4,952	4036	4200	690	8,926
" " 8	646	2,746	2148	2048	431	4,627
" " 9	1098	5,257	3933	3507	725	8,165
" " 10	2085	10,815	7162	4767	2874	14,803
" " 11	603	2,764	2059	1132	983	4,174
TOTAL	12114	58,135	34701	32776	8552	84,194.

IRRIGATION SCHEMES						
Swaziland Irrigation Scheme (S.I.S) Area S	-	1,193	1636	238	81	1,955
TAMBONKULU ESTATES.						
Area T	-	133	197	51	21	269
BIG BEND						
Area B	-	741	800	295	96	1,191
TOTAL		2,067	2633	584	198	3,415
EUROPEAN FARMS		1,829			±	7,000

SUMMARY

SURVEILLANCE AREA:	Kraals	12,114	
	Huts	58,135	
	Population	84,194	
CONTROLLED AREAS	Irrigation Schemes.	Huts	2,067
		Population	3,415
	Farms:	Huts	1,829
		Population	7,000 ±

4/....

4. CLIMATIC CONDITIONS.

Showers of rain fell sporadically during September-October throughout the territory. This was followed by heavier storms during November and in December.

The early rains have resulted in a high water table throughout the territory and the December rains have created ideal breeding conditions for the malaria vector, A. gambiae throughout the territory.

The following weather reports were received from the four stations named below.

SEPTEMBER 1958

STATION	RAINFALL			TEMPERATURE (°C)			
			No. of	ACTUAL		MEAN	
	INS.	MMS.	Days	Max.	Min.	Max.	Min.
Balegane	2.66	67.5	8	41.3	6.5	27.6	13.5
Bremersdorp	2.35	59.7	13	40.1	9.3	26.4	13.4
Stegi	1.78	45.2	7	40.2	8	25.7	13.0
Gollel	1.59	40.5	7	43.2	7.8	27.6	15.0
OCTOBER 1958							
Balegane	.25	6.3	3	40.2	10.2	28.2	15.7
Bremersdorp	2.18	55.3	11	38.1	8.9	27.0	14.7
Stegi	.99	25.1	6	37.6	9.0	26.5	13.8
Gollel	1.81	46.0	7	42	12.5	29.0	17.1
NOVEMBER 1958							
Balegane	5.39	136.9	9	42.5	16.6	32.4	19.8
Bremersdorp	4.94	125.4	14	38.4	15.5	30.6	18.3
Stegi	5.17	131.4	7	38.8	14.5	29.6	17.2
Gollel	4.49	114.0	12	40.4	17.0	31.6	19.8
DECEMBER 1958							
Balegane	7.89	200.5	9	36.4	17.1	30.1	19.9
Bremersdorp	3.67	93.3	14	33.2	15.0	28.7	18.3
Stegi	5.35	135.9	7	34.2	12.0	27.4	16.1
Gollel	3.78	96.0	6	35.6	15.1	31.1	20.0

5. ENTOMOLOGY

A. gambiae. The first larvae of A. gambiae were found on the 2nd October 1958, in the Ingwavuma River at Lubuli (Area 8). The river was low and the puddled sand bed ideal for mosquito breeding.

A "night-catch" was immediately organised between 7 p.m and 12.30 a.m. in that vicinity, but owing to adverse weather conditions, no mosquitoes were found. Huts in the river areas have also been tested, using pyrethrum as a space spray, with no effect. The river has since then been in flood and has maintained a high water level. No. A. gambiae larvae or adult mosquitoes have since then been detected in that area.

During the investigation of a fresh infection of malaria in a European child, during October at the Nyatane River, 8 A. funestus ♀ and 1 A. leesoni were found in a single native hut. (Identification confirmed by de Meillon).

Subsequent tests carried out in this, rather sparsely populated native area revealed no mosquitoes. This was also followed up with numerous bloodslides. No transmission other than the case mentioned has, however, been detected.

During a Night Catch at this village from 6 p.m to 12 p.m. the following mosquitoes were found:

Biting Man inside Hut	Nil
" " outside "	1. A. rufipes ♀
" Cattle in adjacent kraal	20 A. squamosus ♀ 10 A. rufipes ♀ 1 A. maculipalpis
Resting in Cattle Kraal	1 A. maculipalpis 2 A. marshalli 4 A. rufipes 2 A. pretoriensis

A. GAMBIAE:-

Intermittent showers which resulted in the regular flushing of watercourses interrupted breeding considerably particularly in the southern district where the Ingwavuma River had been reasonably high, during October, November and December, covering the puddles normally present in the sand bed.

Towards the end of November heavier breeding of A. gambiae was observed at the Mzimpofu River, Sipofaneni (area 7) and also at the Langa River (Area 6). The decrease in larval findings during December could be attributed to the regular flushing of watercourses. Small numbers of A. gambiae larvae also appeared at Nkambeni (Area No. 2) and at Border Gate (Area No. 1).

A. FUNESTUS.

The breeding of A. funestus has been going on regularly since October at the Tofus Stream, Sinceni (Area No. 7).
Sipofaneni (" " 7)
Black Mbuluzi (Nokwane) (" " 3)
and at the Nyetane River (" " 6)

Anopheles leesoni also appeared in smaller number in the Tofus stream.

Regular test spraying of African huts, using pyrethrum as a space spray by the surveillance staff, are recorded as follows:- A total number of 2,926 huts have been tested. The areas where A. gambiae and A. funestus were located are indicated on the map.

SPECIES.	LARVAE. Oct.	Nov.	Dec.	ADULT TEST SPRAYS. Oct.	Nov.	Dec.	ADULT NIGHT CATCHES Oct.	Nov.	Dec.
A. gambiae	22	128	4	1 ♀	-	-	-	-	-
A. funestus	44	17	22	8 ♀	-	2 ♀	-	-	-
A. leesoni	1	-	1	1 ♂	-	1 ♂	-	-	-
A. maculipalpis	321	94	89	-	-	-	2 ♀	-	-
A. squamosus	5	-	138	-	-	-	20 ♀	-	-
A. " var. cyd.	60	-	8	-	-	-	-	-	-
A. constani	55	33	76	2 ♀	-	1 ♀	-	-	-
A. pretoriensis	300	259	256	-	-	-	2 ♀	-	-
A. demeilloni	31	30	5	-	-	-	-	-	-
A. cinereus	26	-	-	-	-	-	-	-	-
A. marshalli	3	17	-	-	2 ♀	3 ♀	2 ♀	-	-
A. rufipes	43	28	56	- 1 ♂	1 ♀	-	14 ♀	-	-
A. theileri	1	-	-	-	-	-	-	-	-

Number of A.gambiae adults did not exceed 1 in 2926 huts
Number of A.funestus adults did not exceed 1 in 292 huts.

Other means, in addition to normal test spraying to determine mosquito density, such as handcatching during the night, night spraying and traps, are to be resorted to during the next few months.

BLOOD SURVEY

Blood slides have been taken as a routine measure throughout the surveillance area, concentrating on the lower age group. Slides were also taken of adults who clinically appear to be suffering from malaria and also, whereever possible, from all immigrants.

The following slides have been examined -

	No. of Slides in surveyed & controlled areas.	No. of positive slides	
		Immigrants.	Indigenous.
September	102	2 Nomahasha/from P.E.A. 2Maphungwane/from P.E.A.	
October	658	1 Stegi top/from P.E.A.	1 Ngomane; Old Infection
November	1466	7Maphungwane/from P.E.A 1 Abercorn Drift/ from P.E.A. 1 Kubuta/from P.E.A.	2Maphungwane, Old Infection. 1 Border Gate, Old Infection 1 Sipofaneni, Old Infection
December	1216	1 Nomahasha/from P.E.A. 1 Stataweni/from P.E.A. 2. Big Bend/from Zululand 1 Abercorn Drift/ from P.E.A.	
TOTAL	3442	19	5

HOSPITAL SLIDES EXAMINED	RESULTS.
15	1 Nyatane, fresh infection 1 Maphungwane; immigrant from P.E.A.

SUMMARY:	Total number slides	3457
	" " positive	26
	" " indigenous	6
	" " imported	20

In addition to the routine survey, group bloodsurveys have been organised in various areas as from the 1st of January 1959.

January 1959.

Every positive case has been investigated in order to establish the source of infection and also to administer the prescribed chloroquin and daraprim.

CONTROL MEASURES.

Spraying of all living quarters on certain European farms and at the three major irrigation schemes have been continued.

B.H.C. was used in huts, and D.D.T in kerosene in the better type of dwelling house. The areas covered are shaded //// on the attached map.

A second application may be given during February/March. This, however, depends on the entomological position at that time.

SPRAY RECORD FROM 15TH OCTOBER - 31ST DECEMBER 1958.

PLACE.		D.D.T	B.H.C.
Bremersdorp Township	(Houses)	27	365
Hotels	(Rooms)	56	7
Mathapha School	(Dormitories)	6	-
European farms		88	1097
P.W.D. Roadcamps	(Rondavels)	21	24
Irrigation Schemes:	Swaziland Irrigation Scheme	7	1193
	Big Bend	25	741
	Tambankulu	-	133
Royal Kraals:	Lozita	-	94
	Lobamba	-	242
Raleigh Fitkin Memorial Hospital		6	21
	TOTAL HUTS.	236	3917

INSECTICIDE AND EQUIPMENT

D.D.T. prepared at Bremersdorp from technical D.D.T 75% para para in kerosene plus resin as supplied by Klipfontein Organic Products. Wall coverage is approximately 2gm/m^2

B.H.C. 10% gamma isomer, wettable powder. Wall coverage .4 gm/m^2

Pyrethrum; Space spray as an immediate "knockdown" for testing huts, used in a hand pump.

D.D.T and B.H.C are applied by means of the Mesto Prakticus knapsack sprayer.

G. J. van Eeden

HEALTH INSPECTOR.

REPORT ON BILHARZIA INVESTIGATIONS 1958

1. THE MZIMNENE CATCHMENT AREA.

(a) URINARY BILHARZIASIS (S. HAEMATOBIUM)

Having received reports that Bilharzia Control by the use of copper sulphate as a molluscicide had proved a failure in a certain well controlled area in the Transvaal, it was decided to undertake a survey in the Pilot Control Scheme in the Mzimnene Catchment area to see whether a similar position had arisen here.

The area has been under control by the use of copper sulphate as the molluscicide for the past six years. To arrive at some idea as to whether the scheme has been successful or not, it was necessary to examine the children that had grown up during that period. A urine survey was, therefore, undertaken with the following results:-

AGE	NO. EXAMINED	NO. POSITIVE	% POSITIVE
1 year	23	-	0.0
2 "	20	-	0.0
3 "	15	2	13.0
4 "	30	3	10.0
5 "	33	4	12.0
6 "	31	9	29.0
7 "	52	16	31.0
8 "	45	15	33.0
9 "	47	18	38.0
10 "	20	9	48.0
Total	316	71	23.8

From these figures it would appear that in spite of our control measures, transmission of the disease was still taking place at a fairly high rate.

From the records I am unable to ascertain what the prevalence rate of the disease was prior to the commencement of control measures in 1952. However, a survey undertaken in 1956 in the area under review gave a figure of 20.1% and as no schemes of mass treatment in the area have ever been undertaken, it is logical to assume that approximately 20% of the total population in the area suffer from the disease.

The percentage of positive cases after six years of control is 23.8%. We must therefore draw the conclusion that the control measures undertaken in Bremersdorp have failed just as they have done in the Transvaal.

There are, however, certain points that have to be taken into consideration. Firstly, the area under control is very limited and the possibility exists that a proportion of the cases found positive in this survey, may have contracted their infection in neighbouring uncontrolled areas. Secondly, the children in the age group (1-10 years) covered by this survey usually show a higher prevalence rate in other areas where the endemicity of the

/disease ....

disease is considered to be as high as it is in Bremersdorp.

We can, therefore, assume that the control measures have done some good in possibly reducing the prevalence rate, but unfortunately no proof of this is attainable with the complete lack of base line data prior to control.

As will be seen from the previous records of snail surveys undertaken during the period of control, the snail population was considerably reduced and the cercarial shedding rate was reduced to almost nil. In spite of this, however, transmission of the disease has continued on a fairly high scale and the importance of complete eradication of the intermediate molluscan host of the disease is emphasised as the only basis for success in this type of control scheme, as it has been shown that a snail infected with one miracidium can produce 200,000 cercariae. Therefore, a very few infected snails can continue the transmission of the disease.

In view of the fact that the control measures in the Mzimnene area have evidently proved a failure, it was decided to discontinue the treatment and to observe the behaviour of the snail population in the process of rehabilitating themselves. Spraying was discontinued in June.

The following table shows the behaviour of the populations of the intermediate molluscan hosts since stopping control measures. Figures are for whole area.

	B.(physopsis.)	Biomphalaria.
June	96 (nil infected)	33 (nil infected)
August	91 (not tested)	Nil
October	542 (not tested)	21 (not tested)
November	105 (2 infected	nil
December	239 (2 infected)	nil.

In September 88 snails from a stagnant pool in the Madonsa Stream were tested for cercarial shedding and 77% were found to be positive. The water from this pool was not able to contaminate the stream so it was left untreated in spite of the high cercarial shedding rate, to observe the further behaviour of the snails.

From the figures given above, there appears to be a natural fluctuation of the snail population and as the numbers have not become excessive and the cercarial shedding rate not high a further period of observation is anticipated.

It is interesting to note that at a recent examination of all the children attending the European Government School, Bremersdorp, no bilharzia infections were discovered.

(b) INTESTINAL BILHARZIASIS (S. MANSONI)

As no figures showing the prevalence rate of intestinal bilharzia in the Bremersdorp area were available and as this disease is considered to be a possibly important source of ill health in the Territory, a survey was undertaken to establish the rate for the area. At the same time figures for other intestinal parasites were determined.

/No. of .....

No. of Stools Examined - 148.

Parasite	No. positive	% positive
S. mansoni	5	3.3
Ascaris	29	20.2
Trichuris	10	7.0
Taenia	10	7.0
Enterobius	8	5,0
Strongyloid spp.	5	3.0
H. Nana	1	0.33

2. IRRIGATION SCHEMES.

In July a survey was started at the Swaziland Irrigation Scheme, Mananga. The survey covered all age groups in the area, a representative sample of approximately 10% of the local population submitted urine and stools for examination. The urine was examined for S.haematobium and the stool for S. mansoni and any other intestinal parasites present, using the M.I.F. Concentration Tehhnique.

S. MANSONI. Of the 277 specimens of stool examined 113 contained ova of S. mansoni, i.e. a prevalence rate of 41%

S. HAEMATOBIUM: Of the 207 specimens of urine examined 94 were positive for S . haematobium ova, i.e. a prevalence rate of 45%.

In 207 patients, stool and urine were examined and 58 of these people were found to be suffering from a double infection (S.haematobium and S.mansoni), i.e. 28%

The following tables show the distribution of the disease in the various age groups.

S. MANSONI

Age Group.	No. examined.	No. positive	% positive
0-10 years	89	45	50
11-20 "	41	12	30
21-30 "	73	31	42
31 years & over	74	26	35

S. HAEMATOBIUM

Age Group	No. examined	No. positive	% positive
0-10 years	72	37	51
11-20 "	28	18	64
21-30 "	56	23	40
31 years & over	51	16	30

There was no significant difference in the incidence of the disease in males and females.

/S. mansoni

	S. MANSONI		S. HAEMATOBIUM	
	No.examined	No.positive	No.examined	No.positive
FEMALES	138	55	95	45
MALES	139	58	112	49

INTESTINAL PARASITISM:

From the survey, it was found that 53% of the population were infested with one or other parasite, S. mansoni being the commonest ovum found in the stool.

OTHER PARASITES FOUND.

	No. examined	No. positive	% Positive
Ascaris	277	12	4.0
Taenia	277	13	4.0
Trichuris	277	9	3.0
H. Nana	277	4	1.4
E. Vermicularis	277	4	1.4
Strongyloides	277	1	0.3
F. Hepatica	277	2	0.7

SNAIL SURVEY, SWAZILAND IRRIGATION SCHEME, MANANGA.

The canal system in the irrigated area was surveyed to obtain some idea of the snail population. In order to save time, it was decided to examine the canals by doing intensive scooping over a length of 10 yards (on either side) in every 110 yards.

The survey showed that there are abundant numbers of Biomphalaria, the vectors of Intestinal Bilharzia, and limited numbers of B. physopsis Africane, the vectors of Urinary Bilharzia.

Biomphalaria were found universally throughout the canal system, while B.(physopsis) was restricted to certain areas. The reason for this finding is not quite clear yet but further work will be undertaken to find the cause of it. It probably has something to do with the habitat, food supplies andthe chemical composition of the water.

Apart from these two vectors of schistosomiasis, a great variety of molluscs were found including Lymnaea, B. Tropicus (universal), B. Forskali (in very limited numbers), Melanoids, Cleopatra , Lanistes species, Bivalves , Ancylidae, and the Planorbid species (Segmentina etc).

The following table shows the distribution of the vectors in the canal system -

/Area....

Area	Biomphalaria.	B. Physopsis
Main Rice Canal	108	-
" " " Dam	411	-
Rice Canal 1	15	1
" " 1 (a)	40	-
" " 2	40	-
" " 3	142	-
" " 3 Extension	50	16
" " 3 Dam	115	55
" " 4	27	-
" " 4 Extension	30	25
" " 4 (a)	2	-
" " 4 (b)	4	-
" " 4 Dam	Nil	25
" " 5	8	-
" " 5 (a)	10	7
Weir Site	13	1
TOTAL	1015	130

Of the 804 Biomphalaria examined for cercariae, none were found positive. The 130 B.(physopsis) were likewise negative.

This finding is strange in view of the fact that there are so many egg passers of both types of the disease in the community. Further infectivity tests will be carried out after the rains start.

The total length of canal surveyed was 12 miles.

Similar surveys were undertaken at Ubombo Ranches, Big Bend, with the following results -

S. Haematobium			S. Mansoni		
No.examined	No.positive		No examined	No.positive	% positive
110	47	43	110	21	19

S. HAEMATOBIUM

Age Group	No.examined	No. positive	% Positive
0-10	23	17	74
11-20	26	18	69
21-30	30	7	23
31 & over	31	5	16%

S. MANSONI

Age Group	No.examined	No. positive	% Positive
0-10	23	6	26
11-20	26	6	23
21-30	30	4	13
30 & over	31	5	16

/S. haematobium ..

	S. HAEMATOBIUM			S. MANSONI		
	No.exam.	No.positive		No.exam.	No.positive	% Positive
Females	38	9	23	38	5	13
Males	72	38	52	72	17	24

Thirty nine Europeans were also examined on this estate. Of these one child and one adult were found to be suffering from combined S. haematobium and S. mansoni infections, and two adults were infected with S. haematobium only.

Three adults were suffering from Trichuris trichuria infestations and one child had an ascaris infestation.

Other intestinal parasites found during the above survey were as follows:-

	110 Stools examined	
Ascaris	30	27%
Trichuris	27	25%
Taenia	12	11%
Strongyloid spp.	11	10%
Hookworm	4	3.6%
F. Hepatica	2	1.8%

SNAIL SURVEY, UBOMBO RANCHES.

Area	Biomphalaria	B. Physopsis
Main Canal	100	nil
Branch Canal	2	nil
Dam 1	71	2
Branch Canal	66	6
Dam 2	180	6
Canal Ex. Dam 1	-	-
Main Branch Canal	80	2
Branch Canal 2	10	1
Branch Canal 3	10	1
TOTAL	519	18

Three B.(physopsis) and one Biomphalaria were found to be shedding mammalian cercariae. These were found in Dam 2 which is a clear water pool with abundant vegetation and many snail vectors. The pool is used by many children and adults for bathing and washing.

CROOKES PLANATATIONS, BIG BEND.

(a) This is part of the Big Bend Irrigation Scheme where sugar cane, citrus and rice are cultivated. A large flat tract of land situated in the lowveld, it adjoins the northern side of the Great Usutu River from where the water is obtained.

/(b)....

(b) Approximately 9 miles of earth canal was surveyed, working on a basis of surveying 10 yards, missing a 100 yards, surveying the next 10 yards etc. (i.e. 10 yards in every 110 yards). 81 Biomphalaria and 54 B.(physopsis) were found and 2 B.(physopsis) were found to be shedding mammalian cercariae. The aquatic vegetation consisted mostly of grass; water temperatures varied between 72°F and 77°F and Ph's varied between 7 and 8.5.

(c) Three large dams averaging 73,000 sq. feet each were surveyed. This time in each case, the whole dam was done. 218 Biomphalaria and 32 B. (physopsis) were found. None were shedding cercariae. Again the vegetation consisted of grass. Temperatures varied between 74°F and 76°F and the Ph's varied between 8 and 8.5.

(d) Finally 5 small pools situated amongst bulrushes adjoining a large compound were surveyed. These pools are used for ablution and drinking pupposes. Although 41 Biomphalaria and 14 B.(physopsis) were found, none were found to be shedding cercariae. Water temperatures and Ph's were 64°F and 8.5 respectively.

(e) The distribution of the snails was as follows:-

		Biomphalaria.	Physopsis	Lymnaea	Tropicus	Melanoids.
Main Canal		65	16	-	97	100
Branch Canal	1	6	12	29	402	-
" "	2	-	12	+	+	+
" "	3	7	1	+	+	+
" "	4	-	4	+	+	-
" "	5	1	5	+	+	-
" "	6	1	-	+	+	+
" "	7	-	4	-	+	-
Dam	1	47	8	+	+	-
"	2	138	12	+	+	-
"	3	33	12	+	+	-
Pool	1	22	7	-	+	-
"	2	12	5	-	+	-
"	3	6	1	-	+	-
"	4	1	-	-	+	-
"	5	-	1	-	+	-
TOTAL		340	100	+	+	+

(f) This total of 340 Biomphalaria and 100 B.(physopsis) was accompanied by a cercarial shedding rate of 2% for B. (physopsis) and 0% for Biomphalaria.

(g) Urine and stool surveys were also carried out, approximately 10% of the total number of Africans on this estate being examined, with the following results:-

No. examined		34	Africans
No. positive for	S. haematobium	18	(34%)
	S. mansoni	3	(9%)
Also present	Taenia		9%
	Ascaris		18%
	Trichuris		6%

(h) Sanitation and water supplies are most unsatisfactory.

/Big Bend ...

BIG BEND RANCHES, LIMITED.

(a) This area adjoins Crookes Plantations on the northern side and the Great Usutu on the western side. It is also part of the same irrigation scheme. Sugar cane, and rice are cultivated here.

(b) Approximately 7 miles of earth canal were surveyed on the basis of 10 yards in every 110 yards. Three Biomphalaria and seven B. (physopsis) were found, none of which were infected with cercariae. The aquatic vegetation consisted mainly of grass and common weeds; water temperatures varied between 73°F and 80°F and Ph's varied between 7 and 8.5.

(c) The distribution of the snails was as follows:-

	Biomphalaria	Physopsis	Lymnaea	Tropicus.
Branch Canal 1	-	-	-	-
" " 2	-	-	+	867
" " 2 Ext.	-	-	-	+
" " 3	1	2	+	+
" " 4	2	-	-	+
" " 5	-	5	+	+
" " 5(a)	-	-	+	+
" " 6	-	-	+	+
" " 7	-	-	+	+
Total	3	7	+	+

(d) Urine and stool surveys were also carried out, approximately 10% of the total number of Africans being examined, with the following results:-

No. examined		51 Africans
No. positive for	S. haematobium	25 (50%)
	S. mansoni	1 (2%)
Also present	S. bovis	2%
	Taenia	14%
	Ascaris	14%
	Entrobius	2%
	Trichuris	6%

NGONINI ESTATES, HORO VALLEY

(a) These estates are situated in the Horo Valley in the lowveld area, 20 miles from Pigg's Peak. Water for the irrigation system is obtained from the Lomati River. Bananas and citrus are cultivated here.

(b) Above the weir on the Lomati River, 61 Biomphalaria and 4 B. (physopsis) were found. Some Biomphalaria only were found to be shedding animal cercariae. The aquatic vegetation consisted mainly of grass; water temperature 78°F and Ph 7.

(c) Approximately 5 miles of the canal were surveyed, on the basis of 10 yards in every 110 yards. Thirteen Biomphalaria and 32 B. (physopsis) only were found. Most of the

/Biomphalaria ....

Biomphalaria and all the physopsis were found in a cemented canal, the water of which, however, was found to be almost stagnant. The snails apparently found sufficient food and shelter provided by organic debris, algae and nitella in the water. One Biomphalaria and six B. (physopsis) were found to be shedding animal cercariae.

The main vegetation of the other canals consisted of grass; water temperatures varied between 78°F and 80°F and Ph's were 7.

(d) Eight dams were surveyed in toto. 85 Biomphalaria and 75 B. (physopsis) altogether were found. In dam No. 1, one Biomphalaria was found to be shedding mammalian cercariae, whilst in other dams a few Biomphalaria, one B. (physopsis) and one Forskalii were shedding animal cercariae. The aquatic vegetation consisted mostly of grass; water temperatures varied between 80°F and 92°F and the Ph's between 6.5 and 7.5.

(e) The intake reservoir of the slow sand filter was examined and a number of Lymnaea only were found clinging to the walls. The supply reservoir at Number 1 compound was also examined and one Biomphalaria and 1 Lymnaea were found on the inner wall.

(f) The areas in and around the male and female bathing sites for No. 1 Compound, in the Lomati River, were surveyed. In both cases the actual bathing sites were clear of vegetation, with rock bottoms, but whilst the water at the female site was slow flowing, that at the male site was rapid flowing. 11 Biomphalaria were found around the female and 8 at the male sites. None were found to be infected with cercariae. Another bathing site in a spruit adjoining the smaller No. 2 Compound was surveyed. Here conditions were ideal for snails, i.e. water slow flowing with grassy vegetation. 27 B. (physopsis) were found but none were infected with cercariae.

(g) The distribution of the snails was as follows:-

	Biomphalaria.	B.(physopsis)	Lymnaea	Tropicus	Melanoids	Forskalii	Segmentina.
Weir Site (near side)	35	-	++	-	2	-	1
" " (far ")	26	4	+	-	-	-	-
Main Canal	-	-	1	-	15	-	-
" " Dam	10	-	3	-	-	-	-
Main Branch Canal	9	32	++	-	-	-	-
Dam No. 1	10	-	-	-	-	-	-
Canal Dam 1	3	-	-	-	-	-	-
Dam No. 2	10	1	18	-	-	-	-
" " 3	1	3	++	-	-	-	-
" " 4	-	-	-	-	-	-	-
Canal ex Dam 4 to Dam 5	1	-	-	-	-	-	-
Dam No. 5	17	68	2	-	-	-	-
" No. 6	37	3	-	-	-	1	-
" No. 7	-	-	5	-	-	19	-
Canal ex Dam 2	-	-	-	-	-	-	-
Supply Reservoir at No. 1 Comp.	1	-	1	-	-	-	-
Female Bathing site in Lomati River at No. 1 Compound	11	-	-	-	55	-	-

/Male Bathing

(contd)	Biomphalaria	B.(physopsis)	Lymnaea	B.Tropicus	Melanoids	B. Forskalii	Segmentina.
Male Bathing site in Lomati River at No.1 Compound	8	-	-	-	36	-	-
Bathing site in spruit near No. 2 Compound	-	27	-	-	-	-	-
Total	179	138	++	-	108	20	1

(h) The cercarial shedding rate for the 179 Biomphalaria was 0.72% and that for the 138 B. (physopsis) was 0.55%.

(i) Urine and stool surveys were carried out, approximately 10% of the Africans being examined, with the following results:-

No. examined		82 Africans
No. positive for	S. haematobium	20 (25%)
	S. mansoni	27 (32%)
Also present	Taenia	5%
	Ascaris	5%
	Entrobius	2.5%
	Trichuris	1.2%

(j) Water supplies are most unsatisfactory.

A Bilharzia Survey was carried out on Mr. Nilsen's farm at Malkerns at the request of the local Medical Practitioner, as he felt that there was an unusually high rate of the disease in the area. Infected snails were found on the farm.

Previous surveys in this area have shown that there was apprevalence rate of 14.3% on this farm and an overall rate of 19.1% for the Malkerns Irrigation area.

2. SCHOOLS. Evelyn Baring High School, Goedgegun.

(a) A urine survey was carried out at the school on the 21st October. The 20 European children, out of the 298 examined, who were found to be positive, were questioned about their activities in an attempt to find the sources of infection, and the names were given to the Medical Officer, Hlatikulu, for treatment.

(b) A snail survey in and around Goedgegun brought to light a fair number of B. (physopsis) in an irrigation canal on the farm Reitvlei. Those were the only snails found. The town water supply appeared to the safe from this menace.

Twentyfive children at an African school at Big Bend were also examined, 16% being positive for S. haematobium and 2% positive for S. mansoni.

R. D. GAULDIE
MEDICAL OFFICER OF HEALTH.

D. M. ECKARD
HEALTH INSPECTOR.

APPENDIX IV

ANNUAL REPORT OF MBULUZI LEPROSY HOSPITAL.

For the year ending 31st December 1958.

The work at the Mbuluzi Leper Colony has proceeded satisfactorily throughout the year. The number of patients in the Colony at the end of the year is 40 (the same figure as at the end of last year). There were 18 admissions during the year; the discharges were 16 plus 2 deaths. The 2 cases who died were the results of old-standing effects of leprosy. Diaminodiphenyl-sulphone has been the drug used in treatment and progress to recovery under this treatment has been steady. Some of the 8 recorded cases of lepra reaction have probably been aggravated by the sulphone treatment.

The morale of the patients under the difficult conditions of prolonged isolation and treatment has been good and much credit is due in this respect to the resident staff whose devotion to the work of caring for the domestic, occupational, recreational and spiritual needs of the patients has been commendable. Regular visits and donations of comforts from the Mbabane Branch of the British Red Cross Society have been much appreciated by staff and patients. They were specially pleased to have a visit from His Honour the Resident Commissioner and Mrs. Marwick at the time of their Christmas party.

I. STAFF.

Dr. David Hynd, C.B.E.	Medical Superintendent
Miss E. Cole, S.R.N.,S.C.M	Matron
Miss Betty Mamba	Nurse
Rev. Samuel Dlamini	Chaplain & Liaison Officer
Mrs. Prisca Manana	Teacher
2 Labourers.	

I make a visit every two weeks for supervision of treatment and for administrative purposes. The great need of telephonic communication with an isolated Institution of this kind has been brought to the notice of the Government again, and it is hoped that steps may be taken by Government in the coming year to provide telephonic communcation with the Colony.

II. FINANCIAL.

The following is a statement of the running costs for the year ending 30th April 1958:-

Food	£431. 19. -.
General & Office Supplies	240. 6. 11
Wages African Staff	317. 19. -.
Travelling Expenses	66. 12. 6.
Medical Supplies	127. 6. 9.
Transport	53. 15. 3
Repairs	68. 16. 6.
Miscellaneous	116. -. 5.
Ambulance Maintenance	147. 6. 4
" Depreciation	62. 10. -
	£1632. 12. 11.

The services of the Medical Superintendent, the Matron and clerical staff are supplied gratuitously from the funds of the Church of the Nazarene. The Colony is run as a department of the Raleigh Fitkin Memorial Hospital, Bremersdorp. The Swaziland Government, which owns the buildings, has effected some repairs during the past year. The Government provided an annual grant of £1,574 to-wards the running of the Colony, for which we are grateful.

Donations have also been received from the Mission to Lepers, London, and from overseas members of the Church of the Nazarene, which have enabled us to meet the above expenditure.

III. STATE DURING THE PAST YEAR.

Number of patients, December 1957 = 40
" " " " 1958 = 40

IV. ADDITIONS TO POPULATION

	Males	Females	Total
Admissions	8	6	14
Re-admissions	1	3	4
	9	9	18

V. LOSSES IN POPULATION

	Males	Females	Total
Deaths	1	1	2
Desertions	1	-	1
Discharges	7	8	15
	9	9	18

VI. ORIGIN OF PATIENTS ADMITTED.

District	Males	Females	Total	Percentage.
Mbabane	3	8	11	61.1
Bremersdorp	1	-	1	5.5
Pigg's Peak	3	-	3	16.7
Mankaiana	1	2	3	16.7
	8	10	18	100%

VII. DURATION OF DISEASE BEFORE ADMISSION

Duration	Admissions	Percentage.
0-1	8	44.5.
1-2	2	11.1
2-3	1	5.5
3-4	4	22.2
4-5	0	-
5 plus	3	16.7
	18	100%

VII. CLASSIFICATION ON ADMISSION

Type	Admissions	Percentage.
Lepromatous	3	16.7
Neural	15	83.3
	18	100%

3/....

Of the 18 patients admitted to the Colony, the following gives the type of the disease according to sex:-

Type	Males	Females	Total	Percentage.
Lepromatous	2	1	3	16.7
Neural	7	8	15	83.3
	9	9	18	100%

IX. AVERAGE AGE ON ADMISSION

The average age on admission was 37.67 years.

X. PROPORTION OF CHILDREN TO TOTAL ADMISSIONS.

There were 4 admissions of children under the age of 16 years out of a total of 18 admissions, i.e. 22.2%

XI. TREATMENT.

Dispensary attendances	12,663
Admissions to wards	20
Inpatient days	3,775

The following were the diseases treated:-

Blindness	1
Cardiac Failure	1
Ill-defined	1
Lepra reaction	8
Paralysis	1
Senility	2
Trophic ulcer	6
	20

XII. LABORATORY REPORT.

111 smears from patients were examined during the year for the presence of B. Leprae with the following results:-

	Positive		Negative	
	Nasal	Skin	Nasal	Skin
Lepromatous	-	30	-	8
Neural	-	-	-	73
	-	30	-	81

DAVID HYND

MEDICAL SUPERINTENDENT.

RETURN OF CASES TREATED : GOVERNMENT AND MISSION HOSPITALS, 1958

Detailed List No.	Group Causes	Total Cases.	Out-patients E	Out-patients A	In-patients E	In-patients A	Deaths E	Deaths A
001-008	Tuberculosis, Respiratory System	688	11	259	1	417	-	47
010	Tuberculosis of Meninges and C.N.S.	6				6		
011	Tuberculosis of Intestine & Peritoneum	30	-	3	2	25		
012,013	Tuberculosis of Bones and joints	98	2	35	2	59		2
014-019	Tuberculosis, all other forms	161	6	94		61		1
020	Congenital Syphilis	196	6	143		47		2
021	Early Syphilis	493		445		48		
024	Tabes Dorsalis	5		4		1		
022,023, 026-029	All other Syphilis	991	2	952		37		1
030-035	Gonococcal Infection	1434	9	1375	1	49		
036-039	Other Venereal Disease	52		51		1		
040,041	Enteric Fever	63			2	61		
044	Brucellosis	1		1				
045	Bacillary Dysentery	416	22	302	3	89		1
046	Amoebiasis	143	1	60	1	81		6
052	Erysipelas	8	1	5	2			
053	Septicaemia & Pyaemia	4	3		1			
055	Diphtheria	21			2	19		5
056	Whooping Cough	653	27	533	1	92		3
057	Meningococcal Infections	10				10		2
060	Leprosy	18		15		3		
061	Tetanus	15		4		11		
080	Acute Poliomyelitis	2				2		
081-083	Late Effects of Poliomyelitis	8		5		3		
085	Measles	871	227	485	1	158		1
092	Infectious Hepatitis	21	5	6	1	9		
104	Tick-bite Fever	17	17					
116	Malaria	15	7	2	4	2		
123-1	Bilharzia (Vesical)	538	17	425	3	93		
123-0	Bilharzia (Intestinal)	5		2		3		
126	Tapeworm Infestation	713	17	675		21		
130.0	Ascariasis	465	19	415		31		
124,128 130.1	Other Helminthic Diseases	84	16	63		5		
049	Food Poisoning	37		11		26		1
087	Chickenpox	220	3	187		36		
131	Dermatophytosis	378	1	376		1		
135	Scabies	134	1	124		9		
137,138	Other Infective & Parasitic Diseases	298	126	161		11		
140-150	Malignant Neoplasms of (a) Mouth, Pharynx, Œsophagus	5		1		4		
151-154	(b) Stomach, Intestine Rectum	14	1	1	2	10	1	2
161-163	(c) Larynx, Trachea, Lung	8				8		
170	(d) Breast	9	1	1	1	6		2
171	(e) Cervix Uteri	11				11		2
172	(f) Body of Uterus	12	2	8		2		1
177	(g) Prostate	4	2			2		1
196,197	(i) Bone & Connective Tissue	4				4		
199	(j) All other sites	32	7	9		16		5

2/...

Detailed List No.	Group Causes	Total Cases	Out-patients		In-patients		Deaths	
			E	A	E	A	E	A
204	Leukaemia	5	1			4		
210-239	Benign Neoplasms	294	42	147	5	100		2
250,251	Non-Toxic Goitre	204	1	183		20		
252	Thyrotoxicosis	19	1	17		1		
260	Diabetes Mellitus	31	9	17		5		
281	Pellagra	131	1	45		85		5
282	Scurvy	48		43		5		
286.6	Kwashiorkor	512	1	297		214		26
286.5	Malnutrition Unqualified	768	29	509		230		22
290	Hyperchromic Anaemias	10		10				
291	Hypochromic Anaemias	23	13	6		4		
292,293	Anaemia, Unspecified	274	41	192		41		2
241	Asthma	349	108	168	5	68		2
240,242 245	Other Allergic Disorders	276	40	228	1	7		
300-309	Psychoses	18	3	10		5		2
310-324 326	Psychoneuroses, Hysteria	265	48	192	7	18		
325	Mental Deficiency	74	10	57		7		
330-334	Vascular Lesions of C.N.S.	103	81	12		10		1
340	Meningitis (Non-Meningococcal)	11	1	1	3	6		2
353	Epilepsy	140	5	91		44		
370-379	Inflammatory Diseases of the Eye	1662	98	1405		159		
385	Cataract	61		37		24		
387	Glaucoma	8	1	6		1		
390	Otitis Externa	376	90	270		16		
391-393	Otitis Media & Mastoiditis	1071	151	763	1	156		2
380-384	All other diseases of the Eye	199	17	169		13		
341-344	Other diseases of C.N.S and Sense Organs	543	59	413	7	64		5
400-402	Rheumatic Fever	45	8	18	3	16		
410-416	Chronic Rheumatic Heart Disease	88	20	24	1	43		2
420-422	Arterio-Sclerotic & Degenerative Heart Disease	131	5	89	2	35		6
430-434	Other Diseases of Heart	603	34	414	20	135	4	14
440-443	Hypertension with Heart Disease	102	17	62	2	21	2	2
444-447	Hypertension	144	76	42	4	22		1
450-456	Diseases of Arteries	11		10		1		
460-468	Other Diseases of Circulatory System	389	111	212	12	54	1	2
470-475	Acute Upper Respiratory Tract Infections	3857	816	2666	52	323		
480-483	Influenza	3807	491	2989	20	307		2
490	Lobar Pneumonia	387	13	54	1	319		22
491	Broncho Pneumonia	811	33	332	7	439	1	22
492,493	Atypical Pneumonia	90	6	34	7	43		1
500	Acute Bronchitis	5086	246	4574	8	258		
501,502	Bronchitis, Chronic & unspecified	1237	181	905	2	149		2
512	Chronic Pharyngitis	497	127	303	14	53		
518,521	Empyeme & Lung Abscess	7		2		5		
519	Pleurisy	265	35	161	7	62		
523	Pneumoconiosis	28		5		23		
520-522 524-527	All other respiratory Diseases	192	53	107		32		2
530	Dental Caries	2928	161	2718	3	46		

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Detailed list No.	Group Causes	Total Cases	Out-patients E	Out-patients A	In-patients E	In-patients A	Deaths E	Deaths A
531-535	All other diseases of Teeth & supporting structures	568	48	445	2	73		
540	Gastric Ulcer	48	26	14		8		1
541	Duodenal Ulcer	60	21	38		1		
543	Gastritis & Duodenitis	1595	56	1451		88		
550-553	Appendicitis	218	73	62	38	45		1
570	Intestinal Obstruction	14	2		5	7		2
560	Hernia	92	29	34	1	28		
571.0	Gastro-Enteritis (4 weeks to 2 years)	2895	162	2061	10	662	2	40
571.1	Gastro-Enteritis (over 2 years)	2086	222	1538	7	319		24
572	Chronic Enteritis & Ulcerative Colitis	354	34	239	3	78		1
581	Cirrhosis of Liver	47	3	24		20		6
584,585	Cholelithiasis and Cholecystitis	65	29	18	7	11		1
536-539, 544,573-580,582, 583,586, 587	Other diseases of Digestive System	2197	197	1784	14	202		7
590	Acute Nephritis	49	2	30	3	14	1	2
591-594	Chronic and unspecified Nephritis	25	1	21		3		
600	Infections of Kidney	180	63	77	3	37		1
602,604	Calculi of Urinary System	6		1	1	4		
610	Hyperplasia of Prostate	23	8	8	1	6		
620,621	Diseases of Breast	147	7	100		40		
613	Hydrocele	71	2	41		28		
634	Disorders of Menstruation	1568	180	1276	2	110		
601,603 605-609 611,612, 614-617, 622-633, 635-637.	All other diseases of genito-urinary system	4411	373	3337	46	655	3	
640,641, 681,682, 684	Sepsis of Pregnancy, Childbirth & Puerperium	61		26		35		
642	Toxaemia of Pregnancy	71	8	18	2	43		1
643,644 670,672	Haemorrhage of Pregnancy and childbirth	23	1	11	1	10		
650	Abortion	222	17	67	5	133		1
651	Abortion with sepsis	85		42	4	39		
671,673-678	Delivery with complications	125			7	118	1	6
660	Delivery without complications	1468			98	1370		
690-698	Infections of Skin and Subcutaneous Tissues	1985	421	1442	8	114		1
720-725	Arthritis & Spondylitis	533	59	405	1	68		
726,727	Muscular Rheumatism and Rheumatism Unspecified	1543	150	1248	4	141		
730	Osteomyelitis & periostitis	76	1	25	5	45		
737,745-749	Ankylosis & acquired Musculo-Skeletal Deformities	97	22	63	2	10		

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Detailed List No.	Group Causes	Total Cases	Out-patients E	Out-patients A	In-patients E	In-patients A	Deaths E	Deaths A
700-714 731-736	All other diseases of the skin	1158	213	805	6	134		1
738-744	All other diseases of Musculo-Skeletal System	401	103	243	9	46		
750-759	Congenital Malformation	63	1	48	1	13		1
760-762	Birth Injuries	26		16		10		1
765	Ophthalmia Neonatorum	15		10		5		
770	Haemolytic Disease (Neo-Natal)	1				1		
773-776	Ill-defined diseases of Early Infancy	177	7	83		87		6
794	Senility	23	1	17		5		1
788.8	P.U.O	136	61	30	2	43		2
780-787, 788.1-788.7, 788.9, 789-792, 795	All other ill-defined Causes of Morbidity	1802	491	699	45	567		11
	"E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS, AND VIOLENCE (EXTERNAL CAUSE)							
E810-E835	Motor vehicle accidents.	385	25	203	20	137	1	4
E800-802 E840-866	Other transport accidents	111	7	32	7	65	1	1
E870-895	Accidental poisoning	75	7	32	2	34		1
E900-904	Accidental Falls	1414	170	897	21	326	1	3
E612	Accidents caused by machinery	180	21	127		32		
E916	Accident cause by fire	361	11	212	2	136		14
E917, E918	Accidents caused by hot substances & corrosives	237	22	141		74		4
E919	Accidents caused by firearms	22		6	1	15		1
E929	Drowning accidents	2		1		1		
E910, E913-915, E920-928, E930-965	All other accidental causes	2643	218	1882	15	528		3
E970-E979	Suicide and self-inflicted injury	7		1		6		
E980-E985	Assault-Homicide	731	10	350	3	368		9
	"N" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS, AND VIOLENCE (NATURE OF INJURY)							
N800-N804	Fracture of Skull	99	3	25	3	68	1	8
N805-N809	Fracture of spine and trunk	87	21	24	4	38	1	5
N810-N829	Fracture of limbs	615	60	165	21	369		2
N830-N839	Dislocation	80	10	46	1	23		

Detailed List No.	Group Causes	Total cases	Out-patients E	Out-patients A	In-patients E	In-patients A	Deaths E	Deaths A
N840-N848	Sprains and strains	816	93	646	4	73		
N850-N856	Head injury (excluding fracture)	408	14	253	2	139		3
N860-N869	Internal injury of chest abdomen and pelvis	25	2	12	1	10		1
N870-N908	Laceration and open wounds	2286	163	1550	23	550	1	3
N910-N929	Superficial Injury - Contusion	585	51	433	4	97		
N930-N936	Foreign Body entering through orifice	196	30	114	2	50		
N940-N949	Burns	581	27	347	2	205		18
N960-N979	Effects of poisons	118	10	40	3	65		1
N950-N959 N980-999	All other effects of external causes	118	10	73	1	34		1
Y00	Medical Examinations Boards, and Tax Exemption examinations	4156	325	3726		105		
Y02	Prophylactic Injections							
	(a) Smallpox vaccination	158	113	45				
	(b) T.A.B.	119	8	111				
	(c) Diphtheria	55	36	19				
	(d) Diphtheria-Whooping Cough	14	4	10				
	(e) Diphtheria-Whooping Cough-Tetanus	739	53	686				
	(f) Tetanus	61	14	47				
	(g) Poliomyelitis	370	195	175				
	(h) Yellow Fever	51	51					
Y06	Antenatal examinations	4091	334	3757				
Y08	Attendants admitted with sick children etc	1159				1159		

APPENDIX VI

GOVERNMENT HOSPITALS AND CLINICS : 1958

HOSPITALS

		Mbabane.	Hlatikulu	Pigg's Peak	Mankaiana
STAFF.	Medical Officers	3	2	1	
	Matron	1	1		
	Nursing Sisters	6	3	-	1
	Pharmacist	1	1		
	Radiographer	1			
	Housekeeper	1			
	Medical Assistant	1	1		1
	Laboratory Assistant	1	1		
	Dispenser	1	1		
	Pupil Dispenser	-	1		
	Nurses	30	23	4	5
	Out-patient Attendant	2			
	Ambulance Driver	2	1	1	
	Ward Attendants & Orderlies	12	11	1	1
BEDS	European	10	8		
	African	142	72	16	16
ADMISSIONS	Europeans	324	54		
	Africans	4169	2210	327	1941
DEATHS	Europeans	7	1		
	Africans	134	76	14	2
DAILY AVERAGE NUMBER OF IN-PATIENTS.	Europeans	5	1		
	Africans	192	87	19	41
OPERATIONS:		1235	236		53
X-RAY EXAMINATIONS		2358	503		
SCREENINGS.		111	33		
OUT-PATIENTS	First Attendances				
	Europeans	4536	583	121	67
	Africans	19031	11096	2547	7288
	Subsequent Attendances				
	Europeans	3594	391	54	87
	Africans	12030	4414	562	2356

/Clinics...

CLINICS

	First Attendances		Subsequent Attendances		Total Attendances	
	E	A	E	A	E	A
HLATIKULU DISTRICT						
Goedgegun	590	5078	532	3369	1122	8447
St. Phillips Mission ++	1	3828	1	1726	2	5554
Mhlotsheni	50	3411	10	1779	60	5190
Hluti	94	2923	44	917	138	3840
Sipofaneni	57	2227	2	937	59	3164
Lubuli +	38	2080	2	366	40	2446
Vimy Ridge (i.e. Gollel)	2	687	-	-	2	687
PIGG'S PEAK DISTRICT						
Horo Clinic	-	5742	-	2717	-	8459
Lesters Clinic +	-	1735	-	424	-	2159
MBABANE DISTRICT						
Government Farm	-	2810	-	1092	-	3902
STEGI DISTRICT						
Nomahasha +	3	1865	-	609	3	2474

+ Clinics controlled by Swazi National Treasury.

++ Roman Catholic Mission Clinics, supplied and supervised from Hlatikulu Hospital.

APPENDIX VII

MISSION HOSPITALS AND CLINICS, 1958.

HOSPITALS.

		Raleigh Fitkin Memorial Hospital Bremersdorp. (Nazerene Mission)	Good Shepherd Hospital, Stegi (Roman Catholic Mission)	Mahamba Methodist Mission Hospital.
Beds		140	30	45
Admissions:	Europeans	248	33	18
	Africans	3612	893	1082
Deaths:	Europeans	6	1	2
	Africans	111	14	52
Daily Average Number of In-patients		123	22	47
OUT-PATIENTS: First Attendances				
	Europeans	2625	574	90
	Africans	9323	4505	968
Subsequent Attendances				
	Europeans	326	244	283
	Africans	6252	1086	2034

CLINICS.

	First Attendances		Subsequent Attendances		Total Attendances	
	E	A	E	A	E	A
NAZARENE MISSION						
Endingeni	3	4377	-	2766	3	7143
Stegi	45	3954	33	1812	78	5766
Pigg's Peak	44	2550	26	818	70	3368
Mayiwane	-	734	-	2179	-	2913
Ebenezer	1	1452	-	375	1	1827
Mliba	2	510	-	819	2	1329
Mafuteni	-	272	-	615	-	887
Bhekinkosi	-	466	-	386	-	852
Balegane	-	369	-	382	-	751
METHODIST MISSION						
Gege	-	344	2	607	-	1051
Dwaleni	-	396	34	530	34	926

APPENDIX VIII

METEORLOGICAL OBSERVATIONS

SWAZILAND 1958

STATION : MBABANE (HIGHVELD)

MONTH	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days
January	23.9	14.5	30.1	11.1	18,8	19
February	No	records	available			
March	"	"	"			
April	24.3	13.5	30.0	10.0	5.2	9
May	No	records	available			
June	"	"	"			
July	"	"	"			
August	"	"	"			
September	"	"	"			
October	"	"	"			
November 19th-30th	27.5	13.0	32.0	9.6	1.22	5
December	23.7	12.8	29.8	8.4	9.33	9
TOTAL	(FOR FOUR MONTHS)				34.55	42
					Average 56.46	

STATION : BREMERSDORP (MIDDLEVELD)

MONTH	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days.
January	28.8	19.6	36.1	16.5	12.11	19
February	29.3	19.1	33.4	15.7	3.5	11
March	29.2	17.4	34.8	14.3	1.58	8
April	28.4	16.6	33.3	13.0	3.25	9
May	28.1	12.6	31.6	8.8	0.17	2
June	23.4	7.3	30.7	3.4	1.00	3
July	24.6	8.1	28.6	5.2	0.14	1
August	25.2	10.2	36.0	5.0	-	-
September	26.4	13.4	40.1	9.3	2.35	13
October	27.0	14.7	38.1	8.9	2.18	11
November	30.6	18.3	38.4	15.5	4.94	14
December	28.7	18.3	33.2	15.0	3.67	14
TOTAL					34.89	115
					Average 33.78	

METEORLOGICAL OBSERVATIONS

SWAZILAND 1958

STATION : HLATIKULU (HIGHVELD)

MONTH	Air Temperatire °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total ins.	No. of days
January	22.1	15.8	27.8	10.5	9.98	19
February	23.5	15.7	28.9	12.2	6.38	14
March	No records available					
April	21.8	14.1	26.9	11.4	3.88	7
May	21.3	13.4	26.6	7.4	0.65	3
June	18.4	8.9	23.5	4.0	0.81	3
July	18.5	9.1	24.1	4.9	-	-
August	19.1	9.1	29.4	1.9	0.05	3
September	20.6	11.0	33.6	4.5	2.23	12
October	20.9	11.3	32.9	6.1	3.16	14
November	23.7	14.6	30.2	9.8	10.15	19
December	22.2	14.5	29.2	10.5	7.47	16.
TOTAL					45.76	110
					Average 45.85	

STATION : STEGI (LOWVELD)

MONTH	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total ins.	No. of days.
January	28.2	18.1	34.8	15.2	9.74	16
February	27.0	17.9	30.2	15.0	6.71	7
March	27.6	16.8	32.0	13.2	2.11	2
April	27.7	16.1	31.0	12.4	1.97	5
May	27.7	14.6	31.0	11.2	-	-
June	22.5	10.1	28.6	6.2	1.20	2
July	23.2	10.8	28.2	9.0	-	-
August	24.1	10.2	35.4	4.2	-	-
September	25.7	13.0	40.2	8.0	1.78	7
October	26.5	13.8	37.6	9.0	0.99	6
November	29.6	17.2	38.8	14.5	5.17	7
December	27.1	16.1	34.2	12.0	5.35	7
TOTAL					35.02	59
					Average 29.61	